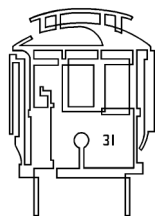


THE NEW ENGLAND ELECTRIC RAILWAY HISTORICAL SOCIETY
Seashore Trolley Museum & National Streetcar Museum at Lowell

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DISPATCH





NEERHS

Seashore Trolley Museum
& National Streetcar Museum at Lowell
PO BOX A
KENNEBUNKPORT, ME 04046
(207) 967-2800 | www.trolleymuseum.org

Mission Statement

New England Electric Railway Historical Society shares powerful connections between the past and present. We preserve knowledge, context, and resources for future generations by collecting, restoring, operating, and exhibiting significant public transit vehicles and artifacts.

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Connie Garland
membership@trolleymuseum.org Membership Secretary

Membership Dues thru 4/30/22

Student, Military, Disabled, and Senior (60+)	\$30
Regular Membership	\$35
Family Membership	\$60
Regular Plus 1 (single guest admission)	\$55
Sustaining Membership	\$75
Contributing Membership	\$120
Museum Patron	\$600
Museum Benefactor	\$1,200
Life Membership	\$1,000

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Front cover photography by Josh Hrehovcik



The DISPATCH

The Dispatch is published by the New England Electric Railway Historical Society for its members and friends. Any opinions expressed herein are those of the writers, and do not necessarily represent the corporate position of the NEERHS.

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The next issue of *The Dispatch* will be published in June 2022. The deadline for submissions is May 1st. Please send your articles and/or original photography to our Executive Director at director@trolleymuseum.org for consideration.

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Connecticut 303 is on its way to Riverside Carhouse following the last Ice Cream Night of the season, August 25, 2021.

From the **EXECUTIVE DIRECTOR** Katie Orlando

Seashore Trolley Museum is poised and ready for another great season! We hope you will join us in 2022; our Opening Day will be the day after our Annual Meeting, on Sunday, May 1st. We have great events planned for guests of all backgrounds and ages (see last page), we have more new exhibits and displays in store (stay tuned for more info), and we will be breaking ground on not one but TWO new buildings! We are so looking forward to our new Model Railroad building as well as a new South Boston Carhouse! More information is shared about that in the pages ahead.

Our year is already off to a wonderful start. During the holiday season we entered the local Holiday Trail of Lights Contest, decorating our front entrance and telling the story of Twinkle Trolley, aka Manchester No. 38 (check out pictures of our display and listen to the audio story we made for cars to listen to while watching, here: <https://trolleymuseum.org/twinkle/>). Our display was so popular, we won the entire contest and through the votes we received, we raised \$3200 for the restoration of Manchester No. 38. Thank you to all who helped us decorate and voted for our display.

Over the holiday season we also reimagined the pages on our website that showcase our transit collection; check out our new pages here: <https://trolleymuseum.org/collections/>

Our 2022 Annual Meeting will be held on Saturday, April 30, 2022 over Zoom. Information to join the meeting, the online ballot to vote for this year's Trustee candidates, and the complete schedule is available at <https://trolleymuseum.org/event/annualmeeting/>

Our 2022 Annual Fund Campaign goal is to raise \$95,000—funding this year will support the work needed on Dallas 434, Boston 5821, continued main line and overhead infrastructure enhancements, and installing track inside Fairview Carhouse. Please remember us in your giving this year and donate at www.trolleymuseum.org/donate.

Thank you for continuing to support Seashore Trolley Museum during this uncertain time. We continue to get through this, together.



Top and bottom: Artifacts in our transit collection were transformed into fun characters as part of our Holiday Trail of Lights display, December 2021 through January 2022. Seashore won the contest.

SOUTH BOSTON RENEWAL

By Jim Schantz

In an exciting development, we are now hard at work on two major building projects on Seashore's campus. You have most likely heard about the Maine Central Model Railroad building as pre-construction work has been underway on that project for over a year. But you may not have heard of the new project to replace the Burton B. Shaw South Boston carhouse. Thanks to a very generous anonymous donation of \$1 million dedicated to this project, replacing Seashore's oldest storage barn is now underway.

And it won't be a one-for-one replacement. The current South Boston houses six streetcars—if one car on each track is shorter than normal. As well, the front of the carhouse is wide open, subjecting the first car in on each track to weather damage unless it is tarped. The new building is being sized to hold nine full-size cars, three on each track. Roll-up doors will provide full weather protection on each track. The interior will feature a concrete floor up to rail height and the design will be clear span with no poles between the tracks.

Many may wonder about the origin of the South Boston name. In fact, it refers to the yard track that feeds into our carhouse, sourced from North Point Carhouse in South Boston. In the mid- 1940s the Boston Elevated was taking delivery of brand-new PCC cars. All of these were single end (with controls at the front only), and North Point had until then housed double end (bi-directional) cars, notably Type 5s such as Seashore's 5821. In 1945 to convert three stub-end tracks to run-through, a new three track fan was installed at the rear of the carhouse, allowing operation of PCCs without backing. After streetcar service to South Boston was abandoned in 1953, Seashore volunteers bought the nearly-new track fan from the contractor demolishing North Point. They reassembled the track at Seashore in 1955



In 1955, after reassembly of the track fan from North Point Carhouse in South Boston, three new arrivals at Seashore pose on the tracks soon to be covered by South Boston Carhouse. From left to right: Dallas 434, Blackpool 144, and Montreal & Southern Counties 621

Volunteers constructed the carhouse served by this track in the 1956 to 1958 period. The design consisted of four lines of wooden phone poles topped with wooden truss pieces and a corrugated metal covering. Insufficient funds prevented covering the sides, so protection from the weather was limited.

The final major structural work was done on the building in 1994. First, the phone pole vertical frames were strengthened by lashing large timbers to them at ground level, where the poles were deteriorated. Second, thanks to a generous donation from long time Operations stalwart Burt Shaw, siding was installed on the sides and back of the building improving protection for the cars inside.

When Burt passed away several years later, the carhouse was officially renamed Burton B. Shaw South Boston Carhouse in his honor.

After 66 years of service protecting valuable fleet cars, the building is showing its age. It provided valuable protection despite having been built with the lowest cost material at each stage of its development. Currently the building is leaning and structural components are showing deterioration. Hence replacement is the only viable option.

As mentioned above, a key goal of the replacement project is to expand the new building to store nine full size streetcars, three on each track—a major upgrade from the three full size and three small cars in the current building. Another objective is to preserve the track fan from South Boston. As the back corner of the existing South Boston is very close to the edge of the service road (part of the former Atlantic Shore Line right of way). There is no easy way to reconfigure the road to allow lengthening the current footprint. Similarly, there's no way to relocate the track fan at the front to make room for a longer building.

To meet these objectives, we have to rotate the building footprint clockwise toward the Highwood lead track. The front of the building will be near the old location and the rear will be near the intersection of the foot path to Highwood and the Riverside access roadway.

It is anticipated that the new South Boston will house primarily operating fleet cars. To help preserve these very important cars, the building will be insulated to slow temperature and humidity changes, and installation of heat/air conditioning units is being investigated. The concrete floor will make walking through the building easier for both visitors and our operating crews.

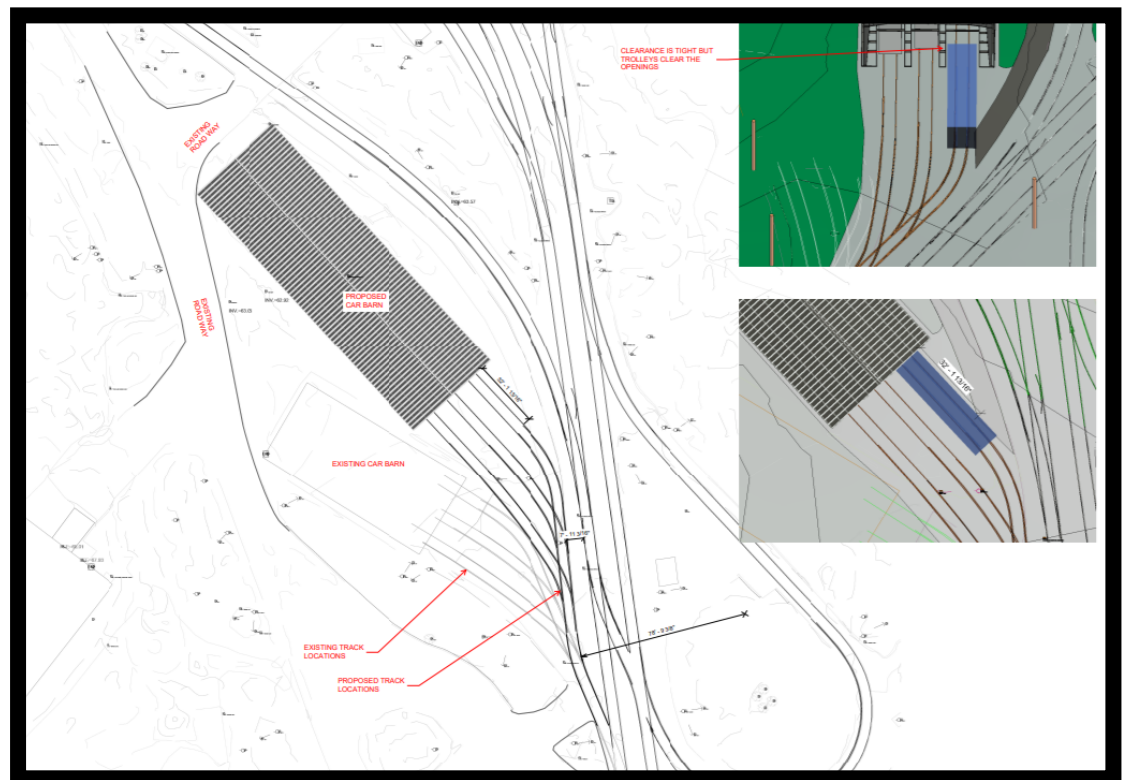
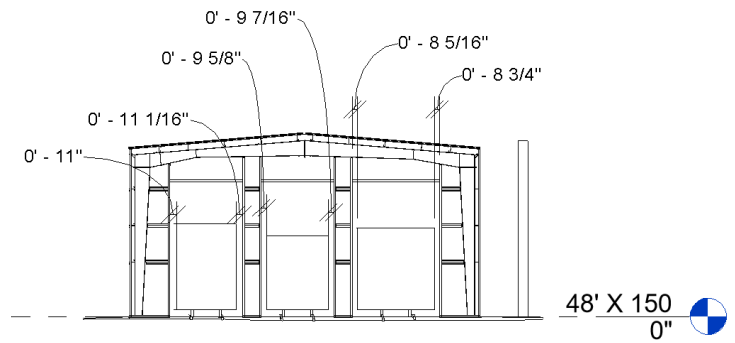
The building will be a pre-engineered Butler building with a sturdy steel frame and corrugated steel sheets for siding and roof. The peak of the roof will be somewhat lower than that of other carhouses as the structure can support substantial snow loads. We are working with Fairfield, Maine-based Sheridan Construction, experts in Butler building projects. Our relationship with Sheridan widened when the firm we had selected to build the model railroad building backed out. Sheridan offered to take on that project as well, even though it is a very different type of construction. Both buildings are now proceeding through the engineering and permitting processes in parallel, which is making it much easier for those of us working on the projects. These projects plus a number of smaller ones are keeping our new Construction Manager Steve Berg very busy handling the myriad issues that arise.

As of this writing we are working on submission packages for the Town of Kennebunkport approval. Special kudos go to Executive Director Katie Orlando negotiating with the town an arrangement to waive the \$20,000 permit fee for each building in exchange for some changes to our tour bus parking arrangement.

Our goal is to have both buildings through the State and local planning by late spring, so construction could start this September. Lack of availability of subcontractors and building material could lead to scheduling delays.

So we hope that when you visit Seashore in the second half of this year that we will have two construction projects underway. And stay tuned because we may have yet another to tell you about in the coming months!

Our special thanks to the generous donor who has made the rebirth of South Boston Carhouse possible.





Our New Direction: **A STRATEGIC PLAN UPDATE**

By Rob Drye, Board Chair & James Schantz, President & CEO

On Saturday, February 5, 2022, active members and volunteers of the Society were invited to attend an annual review of our New Direction Strategic Plan. Over 45 members attended part or the entire discussion, which lasted about 7 hours with breaks and covered all 16 priority areas. We reviewed the progress made on our Strategic Plan priorities to date, the work that still needs to be done, and opportunities for member involvement.

The following is a list of opportunities that came out of the discussion that will help support our Strategic Plan priorities that we still are looking for members to help us—we hope you will consider volunteering to help with one or more items below!

- Code of Conduct Review: Volunteers are needed to review our Code of Conduct this spring. (Strategic Plan Priority #3: Code of Ethics)
- Lecture series coordinator: Volunteers are needed to coordinate and present as part of a virtual or in-person lecture series year-round. Topics can include trolley history, museum history, transit in photos, and more. (Strategic Plan Priority #5: Programs Support and Activities)
- Finish Riverside Clean-Up: This April, volunteers are needed to finish the Riverside Carhouse scrap clean out efforts that began in 2021. (Strategic Plan Priority #5: Programs Support and Activities)
- The Golden Chariot (Montreal No. 2) is being added as a public fundraising priority for the next five years. One or more volunteers is needed to be the Project Sponsor for this campaign. (Strategic Plan Priority #6: Collections Stewardship)
- Employees of Transit Weekend: Volunteers are needed to coordinate this give back weekend, which would target employees in transit. The outcome is to recruit new volunteers or volunteer prospects from this initiative. (Strategic Plan Priority #10: Related Business Activities)
- Volunteers are needed to work with the groups of adults with disabilities that come to volunteer on campus weekly. Due to staffing cuts at these programs, more oversight and guidance is needed by us so they can continue to contribute in a meaningful way. (Strategic Plan Priority #12: Corporate Relations)
- Volunteers are needed to participate in local, state, or regional advocacy efforts. This includes letter-writing campaigns, virtual meetings with town and state officials, and other industry-related initiatives that require advocates to advance a new law or opportunity where the museum would greatly benefit. (Strategic Plan Priority #14: Advocacy)

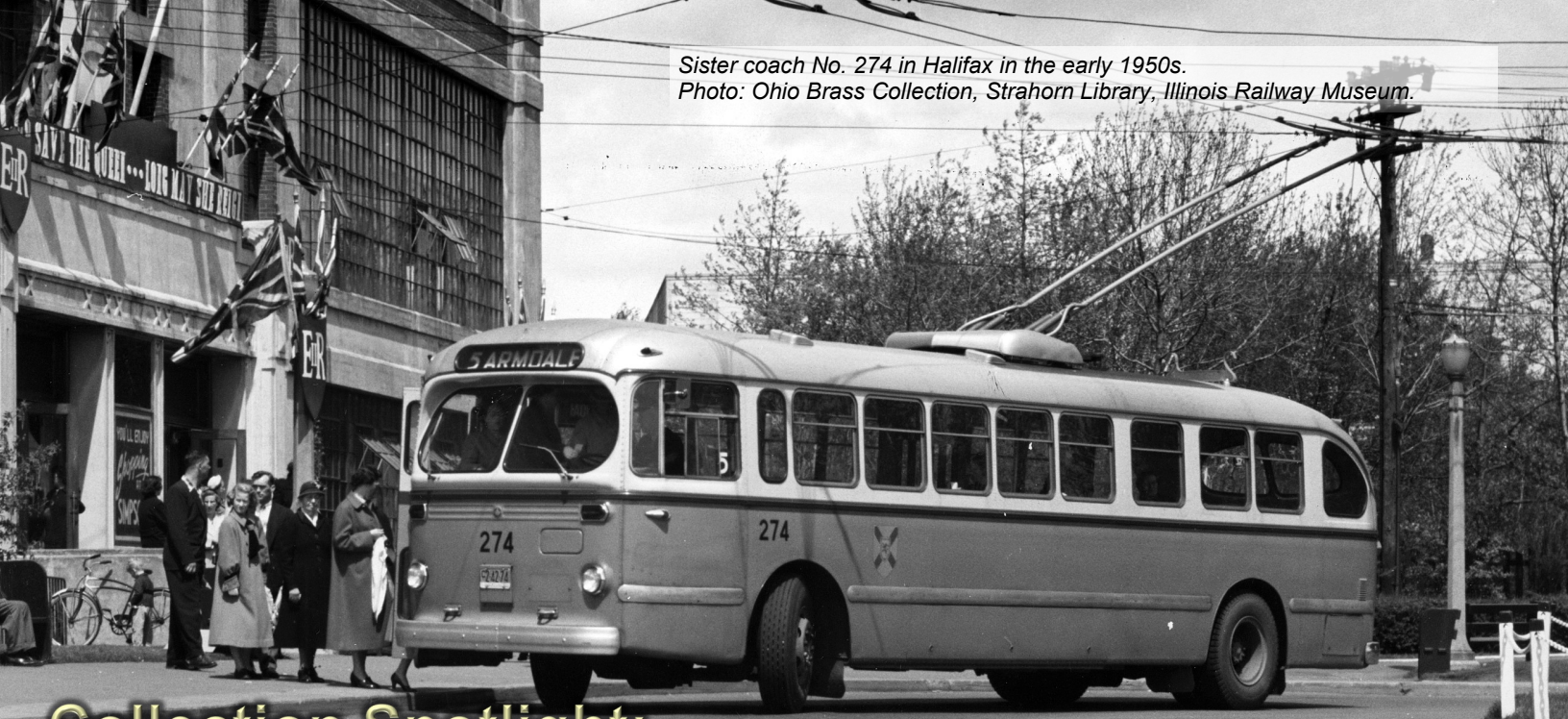
If you would like to volunteer to help us achieve our strategic vision, please email Rob Drye at chairman@trolleymuseum.org or Jim Schantz at president@trolleymuseum.org. Visit www.trolleymuseum.org/newdirection to review our full 5-year New Direction Strategic Plan, as well as our nine restoration fundraising priorities and our eleven capital projects.

Thank you for your ongoing support. We look forward to updating you on our continued progress in future issues of *The Dispatch*!

Photo above: This small bus, built by Yellow Coach in 1937, was on display for Christmas Prelude events. The bus came to Seashore from Lincoln, Nebraska, but it was originally operated by the Waterloo, Cedar Falls & Northern Railroad supplementing that interurban's rail service.

Sister coach No. 274 in Halifax in the early 1950s.

Photo: Ohio Brass Collection, Strahorn Library, Illinois Railway Museum.



Collection Spotlight:

HALIFAX TROLLEY BUS No. 273

Loring Lawrence and Richmond Bates

After World War II, Nova Scotia Light & Power (NSL&P), which ran the transit system in Halifax, decided to convert its entire streetcar system to trolley bus operation. In Halifax, these vehicles were termed “trolleycoaches.” NSL&P and the city decided to use trolleycoaches instead of motor buses for several reasons. Trolleycoaches can accelerate and brake better than motor buses, and they have no exhaust and are almost silent. Further, trolleycoaches have excellent hill climbing ability, and they can be stored outdoors in cold weather - both advantages in Halifax with its hills and cold winters. On the other hand, trolley buses were restricted to streets with the overhead wires, a factor which led to their demise in Halifax in 1970. However, since the 1990s, newly manufactured trolley buses for other cities have been equipped with auxiliary battery power which allows them to bypass streets undergoing construction and to extend service beyond the end point of the overhead wires.

NSL&P had considered modernizing the street railway, but important negatives were the narrow streets and sharp turns – the very reason that its entire fleet was limited to 82 short wheelbase, 4-wheel Birney trolleys. Following a detailed analysis of future trends, a Toronto consultant advised trolleycoaches as the best solution to handle an expected 50 percent increase in patronage. The carefully-crafted conversion took place over a four-month period between March and July of 1949. Installation of the new trolleycoach wires was initially concentrated in downtown Halifax and Barrington Street, resulting in trolleycoaches working the city center portion of most routes while the Birney trolleys continued to temporarily work the outer portions. The final streetcar journeys took place on March 26, 1949, and in so doing, Halifax became the first city in North America whose transit system was exclusively trolleycoach – with not a single auxiliary motor bus. Because Halifax is concentrated on a peninsula with only a narrow connection to the mainland, trolleycoaches were well suited to serve the dense housing and commercial areas. With few changes, ten trolleycoach routes with frequent headways continued to serve Halifax for two decades.

The initial trolleycoach fleet comprised 71 Canadian Car & Foundry (CCF) 44-seat model T44 coaches shipped aboard railroad flatcars from the CCF plant in Fort William (now Thunder Bay), Ontario. Numbered 201-271, all had arrived in Halifax by early 1949. Additional purchases brought four T-44A's in 1950 (272-275) and two more in 1952 (276 and 277). Another four were required in 1954 (278-281) due to the opening of the new cross-harbor Angus MacDonald suspension bridge to Dartmouth. Anticipating continued growth in patronage, these were followed in 1955 by the surprising purchase of six 1947 Pullman-Standard 44CS trolleycoaches from United Transit Co. of Providence, Rhode Island. The Halifax trolleycoaches carried a brilliant yellow, cream and silver paint scheme.



Halifax No. 273 at the Seashore Trolley Museum, May 1971. Photo: Russ Munroe.

Altogether, between 1946 and 1954, CC&F – later known as Can Car – built 1,114 trolley buses for Canadian operators, following designs licensed by American Car & Foundry (ACF-Brill.)

NSL&P drivers had a reputation for courtesy. Their snappy uniforms included a dark navy blue double-breasted jacket with gold buttons, a gray shirt, black necktie and well-polished black shoes. Drivers were known to assist infirmed passengers leaving the coach to cross the street (and without complaints from the other passengers).

In 1963, Nova Scotia Light & Power bought a dozen Canadian-built GM TDH4519 diesel buses which were assigned solely to a pair of entirely new routes, the 8 and 10, largely serving new residential neighborhoods and shopping centers. However, during the 1960s, deficits, small at first, increased every year rising to \$105,097 in 1965. And by then, serious traffic congestion was hindering and delaying trolleycoach service. With nearly all land on the Halifax peninsula occupied, housing tracts began to appear in neighboring communities, resulting in their annexation into the City of Halifax. Terms of its franchise required NSL&P to serve the entire city, creating an impossible problem for trolleycoach operation. The situation led to the formation of a city-owned transit commission – Halifax Transit. With an entirely new fleet of diesel buses (and the twelve diesel buses ex-NSL&P), the new regime took over on January 1, 1970. The last trolleycoach, No. 243, pulled into the Young Street garage at 12:43 AM on New Year's Day – the final goodbye to a highly respected and well managed trolleycoach transit system.¹

After the municipal takeover, Nova Scotia Light & Power sought buyers for its newly idle trolley buses. All were scrapped aside from No. 273 and a few sold to individuals for use as cabins and storage sheds. In response to a request from Seashore, NSL&P donated trolleycoach No. 273 to the museum. This was the only Halifax trolleycoach to be preserved. No. 273 became part of the museum's extensive collection of Canadian transit vehicles – the largest outside of Canada. Within Seashore's Canadian collection, No. 273 is the only representative from the Maritime Provinces.



TROLLEY COACHES come in
RIDING goes up
in *Halifax*
Nova Scotia

● Trolley coach rider appeal has worked again. This time in Halifax, Nova Scotia, where Nova Scotia Light and Power Company operates 75 electric trolley coaches.

Back in March, 1949, Halifax became the first city in North America to be served wholly by trolley coaches. Within a few days, riding began to go up . . . 14.5 per cent for the last eight months of 1949. Again in 1950, riding increased. It was 2½ per cent higher than in 1949, 17 per cent higher than the old system operated with motor buses and streetcars.

Originally, Halifax planned to run 65 coaches. But increased riding made it necessary to add six more coaches in 1949, four more in 1950.

In its annual report, Nova Scotia Light and Power Company described the arrival of the trolley coach as the "big event of the bicentennial year." A Halifax newspaper commended the company for "foresight in establishing this fine new system."

And the 100,000 people of Halifax expressed their approval, praised trolley coaches in letters to the company and to the newspapers, supported them in a public opinion survey. But most important of all, they expressed approval where it really counts—by putting more money in the fare box.



ELECTRIC TROLLEY COACHES
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Canadian Ohio Brass Co., Ltd., Niagara Falls, Ont.

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AND CAR EQUIPMENT
FOR TROLLEY COACHES
AND STREETCARS

In 1971, No. 273's trip to the museum started by truck from Halifax to Yarmouth, Nova Scotia. From Yarmouth to Portland, ME, No. 273 rode on the ferry MS *Prince of Fundy*. The ship's owner, Lion Ferry, donated the transportation on the ferry. From Portland, a Biddeford & Saco Bus crew towed No. 273 to Kennebunkport.

No. 273 was the fourth trolley bus at Seashore, and was an impetus for the museum to construct overhead wires to operate these vehicles.

No. 273 is currently stored outside Central car barn (pictured below). It is in fair condition and in need of various repairs.

¹ For a complete history of Halifax trolleycoaches, see: Paul A. Leger and Loring M. Lawrence, *Halifax - City of Trolleycoaches*, Bus History Association, 1994, 116pp.

Left: Ohio Brass supplied hardware and fittings for the overhead wire. The company touted the success of the Halifax trolleycoaches in this advertisement in the June 1951 issue of *Bus Transportation*.



KK

Collection Spotlight: **THE NARCISSUS** By Phil Morse & Ernie Eaton

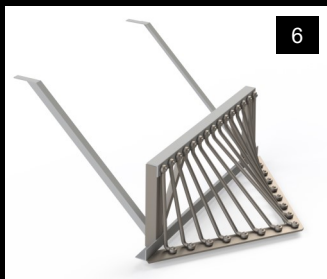
The *Narcissus* is the name given to No. 14, one of seven high-speed, wooden interurbans from the legendary Portland-Lewiston Interurban Railroad (PLI). The original six interurbans all had even numbers 10-20. In addition, the builder of the electric railroad, W. Scott Libbey, also assigned the name of one of his favorite flowers to each of the majestic railcars; Arbutus, Gladiolus, Narcissus, Clematis, Azalea, and Magnolia. Libbey felt the names would add an emotional component to the experience the passengers and staff had with each of the coaches by referring to them by name. A seventh interurban was acquired in 1920, No. 22, and in honor of Maine's Centennial year, was named Maine.

Operating between the two major population centers in Maine from 1914 until 1933, the *Narcissus* had the honor of having Theodore Roosevelt as a passenger on August 18, 1914. The *Narcissus* is the sole surviving interurban coach from the PLI and is listed in the National Register of Historic Places. The *Narcissus* is under restoration in Seashore Trolley Museum's Donald G. Curry Town House Restoration Shop.



Here is a brief summary of the restoration work related to the *Narcissus* that has happened over the past two years:

Seth Reed is our master woodworker in the restoration shop. Seth specializes in historic restoration and early in 2020, continued his work on the seemingly unending assortment of interior mahogany panels, various trim pieces, and numerous sash. Also, early in 2020, Brian Tenaglia and Bill Catanesye worked on dismantling the first truck (the unit that contains wheels, motors, axles, and the brake assembly components) of two, that will be rebuilt for use under the *Narcissus*. Components removed from the truck that will be reinstalled, were sandblasted and primed. They were then placed in the secure storage trailer until they are needed as the rebuilding of the truck resumes. Brian also worked on assessing the working condition of the Multi-System 8-Unit switch box (the central control system for powering the coach forward and in reverse) while connected to each of the two HL-15B controllers. Later in 2020, the four 65-hp motors for the *Narcissus* were sent out to A/C Electric in Auburn, ME to be totally refurbished. The motors returned to the Museum in April 2021 and are in storage until they are scheduled for installation. Another major task that was accomplished by the end of 2020 was having all the various cuts made, holes drilled, mortise cuts made, and mating of the steel channels to each of the 37-foot-long vintage southern yellow pine side sills. Both sets of sill pairings are in the secure storage trailer until it's their turn to be installed.



1. One side sill and matching steel channel sit adjacent to The Narcissus restoration; Seashore Trolley Museum collection.

2-6: Renderings from Solidworks, photos by Ernie Eaton. 2. The complete car with some roof ribs exposed. 3. Vestibule frame with the trim and siding hidden to expose the frame structure. 4. The vestibule bulkhead, as viewed from inside the compartment. It's a subassembly made up of 385 components. 5. Vestibule structure forward of the bulkhead including doors and windows. 6. The fender is a fairly simple subassembly.

Prior to the side sills and matching steel channel being installed, other structural repairs to the vestibules and to the passenger and smoking compartments are needed. Early in 2021, prior to the first stage of the dismantling of the number two end vestibule all pieces were reinspected and measurements confirmed. Seth has begun restoring or replicating wood components needed to rebuild the vestibule affectionately called the "Teddy end" of the *Narcissus*. This is the vestibule where Theodore Roosevelt is seen in a photo leaning out through the train doorway opening, while addressing the gathered folks in Gray, ME on August 18, 1914.

One of the truly important tools that Ernie Eaton, the restoration shop project manager overseeing all aspects of the restoration of the *Narcissus*, is utilizing, is Solidworks software. Since fall of 2017, as a personal effort, Ernie Eaton has been capturing a three dimensional computer model of *Narcissus'* wood and steel structure using a student license of Solidworks 3D modeling software. In December of 2020, Dassault Systemes granted the museum several commercial licenses for their Solidworks software suite. Since then Ernie has continued the *Narcissus* effort, and the software has been used by both Ernie and Brian to produce software models of casting and wood structures required for other projects as well.

Over the years each unique wood and structural metal part of *Narcissus* has been measured and then described to Solidworks producing many part files. Even the interlocking rubber floor tiles were modeled. These files are then used to "build" computer based assemblies such as the frame, vestibule structure, walls and roof. These assemblies come together to produce a model of the entire car that captures its entire design. Using Solidworks Visualize, these computer models have been used to generate (render) image files of the view desired. Multiple images can be combined to form videos, and more complex renders can produce stereoscopic, 360, and 360 stereo views which bring the model to life. When rendering, paint and gold leaf can be removed to view the materials beneath. Parts can be temporarily removed, or cross section views produced to reveal the inner workings of the car's structure. Most of these views could never be captured using the physical car. We expect that these images and videos will eventually be used to tell the story of the car's construction in a display at the museum. It should also provide future generations of researchers a unique ability to see into the structure of this 1912 luxury coach. The *Narcissus* model was recently enhanced with details revealed during the disassembly of the #2 vestibule allowing mechanical drawings that aid in the understanding and fabrication of missing or damaged parts. You can see an animated short video from early in 2020 here: <https://youtu.be/FcIGGfBGDRA>



Major structural work to the car's vestibules has begun. Seashore Trolley Museum collection

Another step forward in the major restoration in 2021 was the arrival of the first set of castings of the metal components needed to assemble one of the twenty, reversible passenger seats. Following some of the pieces having certain portions of their surfaces machined to match with other pieces, these pieces will then be assembled. Adjustments will be made in order to have a smooth, synchronized movement, as the seat-backs are engaged to reverse their position for passengers. Once this first set is prepped and the seat is operating properly, any needed adjustments to the cast patterns will be made and the remaining nineteen sets of seat castings will be authorized as future funding allows.

The current funds in-hand are budgeted primarily for the remainder of 2022 towards work and materials needed for the reconstruction of the major structural components of the vestibules, the structural components of the passenger and smoking compartments, including cleats/ledgers, needle and center beam timbers, upper, lower, vertical & horizontal truss rods and beams, upper truss flat and round bars, vertical tie bolts, and the two bolster assemblies. If adequate funds are in hand, after the completion of this collection of tasks, followed by the assessment and approval that all other necessary tasks required to be completed prior to the installation of the side sills and their matching steel channels have been certified completed, will the side sills and steel channelsets be installed.

Following the successful completion of the installation of the side sill assemblies, the next priority in the restoration, if funds are available, will be to systematically, starting with the roof, begin installing materials to the exterior of the coach, with the goal to have the exterior of the coach fully enclosed.

We estimate that we may have adequate funds in-hand to continue working on the *Narcissus* through the end of 2022. As is clear in the above summary, many aspects of the restoration are in a holding pattern until adequate funds are raised to reactivate the progress. Current tasks that were started but are on hold due to lack of funding include construction of seats, truck-work, and overhaul of the Multi-system 8-unit switch box and the two controllers. Additional tasks that could begin with adequate funding include construction of metal staircases, reconstruction of the trap doors above each set of steps, and construction and installation of Van Dorn coupler assemblies.

Your donation to the ***Narcissus* Fund 816** will help keep the restoration work moving forward into next year.

As a project included in the Museum's New Direction campaign, the *Narcissus* has a webpage within the Museum's website: <https://trolleymuseum.org/narcissus/> where visitors are able to make online donations to Fund 816 in support of the *Narcissus* restoration. Please consider making a donation today.

NEW MUSEUM CURATOR APPOINTED

Michael delaVega has been appointed to the position of Seashore Trolley Museum's Curator following a 4-month interview process. Mike lives in Lowell, Massachusetts and first volunteered at the Lowell National Historical Park in 2013. Mike continues to serve as a flagger and operator of Seashore's New Orleans No. 966 at the Park. Mike joined Seashore Trolley Museum in 2016 and became a member of Seashore's Railway Operations Department soon after. He is a regular operator on the Saturday and Sunday crews.

Prior to retiring from the workforce in 2012, Mike served as an Executive Assistant to senior executives working for Liberty Mutual, Bank of America, Ropes & Gray, Lehman Brothers, and MIT. He earned a Bachelor of Arts degree from Northeastern University in 1998, majoring in management information systems, and a certificate in graphic design and digital imaging from UMass Lowell in 2015.

The Curatorial Committee continues to meet on the second Saturday of the odd numbered months. To stay connected with our curatorial work, please be encouraged to send Mike an email at curator@trolleymuseum.org and ask to be added to our curatorial email group.



Photo caption: Seashore's new Museum Curator, Mike delaVega. MD

Guests enjoy making s'mores over a campfire during our Christmas Prelude event.



A LOT OF LISTENING

By Herbert Pence

In the fall of 2021, Seashore conducted three surveys. Undoubtedly you were part of one of them. They were a: Membership Satisfaction Survey, Guest Satisfaction Survey and Volunteer Response Survey. Combined, the surveys provide leadership with a snapshot of how Seashore is perceived by insiders and outsiders.

The one which affects our mission the most is the Guest Satisfaction Survey (GSS). The survey was sent by e-mail to 984 visitors, who purchased tickets via Eventbrite. With 206 responses, the reply rate was 21%. That is a one in five response rate, not bad. Because Seashore did not have individual e-mail addresses for the bus tour visitors, they were not surveyed. The same holds true for the casual walk-in visitors. Remember, this is a snapshot.

How are we doing? Does our public think we are doing a good job? Will they return? What would our guests change to make us better? This represents our future.

"What is the one thing you would change about Seashore?" question came up with NOTHING, the satisfying answer of 67%, of the respondents. Such an answer can lead to complacency, yet the volunteers are performing well. How do you sharpen an already sharp knife, with difficulty?

The remaining five responses were in the single digits: 9% clean up the junk, 5% lengthen/shorten the trolley ride, 3% better paths for strollers, 3% improve the quality of the on-board commentary, and, finally, 2% better quality merchandise in the Gift Shop. Remember, for the last question 98% are satisfied with the retail selection.

"What's your favorite part about Seashore," responses were unsurprising. 24% answered "my kids/family love it." At second place, 23% the trolley ride, followed by 18% special events and 14% the volunteers and staff. Finally, there was a 9% appreciation for the history and the collection. A whopping 71% looked forward to returning in 2022. 19% will return within the next five years and 9% looked into the distant future.

How visitors heard about Seashore was all over the block. 70% discovered us on social media. Last year, speaking to local visitors, many were looking for activities for young children. Most York County attractions were closed due to the virus. Our website was a great marketing tool. For the Operating Department volunteers, this became a great sales promotion for memberships, "Be a member, visit us every day without additional cost." In 2021, Seashore did sell 160 new memberships. Word of mouth is the best sales tool. 12% heard about our museum from a Member or supporter.

Finally, all of us should take a deep bow. The question was, "Have your interactions with our volunteers and employees met your expectations?" The resounding answer was 99%!

Occasionally, car crews will be handed a tip. We try to tactfully reject it, but finally end up placing the currency in the tip box outside the Gift Shop entrance. One morning, I hosted a tour bus load of visitors. I was on the ground helping unload the streetcar. The last passenger down was a slight built man. As I extended my hand to him, he expertly placed a bill into it. I thanked him for his generosity.

For some reason, I looked at what he had placed in my hand and a 50 winked back at me. I unfolded the currency to see a 50 dollar bill in my hand. "No, this is too much. Take it back!" I extended my hand to the man. "No, it is yours. You did a good job and we voted to thank you. It is only a dollar per person on your car. Thank you very much." He sidestepped me and hurried to catch up with his fellow tour bus passengers. In my mind's eye, this car load of guests was down market. Talk about being humbled. It appeared to me this tour group was on their trip of the year or maybe three-years. Motivated, you bet. We'll find that 1% and turn them into believers.



Top right: A group that have been friends since high school filled a trolley during one of our Ice Cream Night events. Middle photo: Children mesmerized by our campus as their trolley ride begins. Bottom: A group of friends and family visits during Happy Trolleyween.



Volunteer Nick Ouellette removing the trolley pole hook from a badly deteriorated piece of roof board.



From the **TOWN HOUSE SHOP** By David Rogers

Winter weather had another late start this year and we used that to our full advantage. We took advantage of mild temps and no snow to get as much prepped for the cold days as possible. We were able to get the **Boston & Maine 500** re-sided. As soon as the spring temperatures arrive it will get paint and wiring. That will fulfill our commitment for the funding that was donated for its repairs. It will be a very serviceable rescue and work car.

Eastern Mass 4387 has had some nagging leaks in the brake stands that hours of polishing of valve surfaces was not solving. Restoration Manager Randy Leclair took a more aggressive approach to the issue. Believing, correctly, that it was a contour problem rather than scratches or gouging, he put a valve base on the milling machine and trued up the surface before then returning to polishing. This worked exceptionally well and adds another tool to our toolbox on brakes. There were breaks in the heating circuitry that Restoration Technician Bill Catanesye dealt with. Using a device for tracing where electrical current is flowing, he was able to find damaged heater elements and fabricate new ones from nichrome wire meant for that purpose.

Work continues on the **Lexington & Boston 41**, albeit at a slower pace due to weather. Most of the passenger compartment windows have been reglazed with glass of the proper thickness. When they are all done they will be installed. New wheel bearings were fabricated at Mystic Valley Foundry in Somerville, MA. Randy has mostly completed the final machining of those rough castings and they are ready to install. In his dedication to high quality results, he discovered that our Bridgeport milling machine had wear that was well out of tolerance. Replacement parts were ordered and installed.

The Narcissus continues to make progress. Restoration Manager Ernie Eaton continues working the structural challenges of the car and provides important guidance for Master Woodworker Seth Reed. He is working on top plates near the roofline of the car and is preparing to fabricate the mahogany assemblies that hold the beautiful arched stained-glass windows.

Thanks to a recent donation, the once beautiful leather seating in the **City of Manchester** parlor car will be beautiful once again. Based on the exquisite workmanship done on the driver's seat of the P&W locomotive 150 by Don Mavrikis in Nashua, NH, we will be having him work on the eight chairs in the C of M.



Volunteer Rick Whetstone sands and paints new windows for *Wheeling No. 639*.



Seashore
Trolley
Museum

2022 Season Events!


195 Log Cabin Road | Kennebunkport, Maine

Open 9:30AM-4:30PM on
Wednesdays—Sundays from
June 1 thru October 31 and
weekends in May and
December.

May



= Experience our Pump Car!

 **Sunday, May 1st: Opening Day & Maine Day!** Admission for Maine residents is \$2.07; youth 16 and under are free. Special cars in our Maine collection will be featured!

Sunday, May 8th: Mother's Day. Mothers admissions are free! Behind the Scenes Shop Tours will be offered from 11AM—1PM.

Saturday, May 21st and May 28th-May 29th: Military Appreciation Days. Active duty military personnel and veterans' admissions are free!

Saturday, May 28th: Dog Appreciation Day. Dogs are welcome every day at the Museum, but come today for special dog-friendly door prizes!

June



Saturday, June 4th: Speeder Day! Take a ride on one of several Speeders visiting Seashore for the day!

Saturday, June 4th: May The 4th Be With You! It's been a few years since May 4th has been on a weekend, and we miss celebrating Star Wars Day, so guests that come dressed as your favorite Star Wars character get in free today!

Saturday-Sunday, June 11th-12th: "I've Driven By Several Times But I've Never Been Down the Driveway" Days. Free admission to York County, Maine residents who have never taken a trolley ride on our electric railway!

Sunday, June 19th: Father's Day. Fathers' admissions are free! Behind the Scenes Shop Tours will be offered at 11AM and 1PM.

Saturday-Sunday June 25th-26th: Pride Weekend. \$3 from each ticket sold this weekend will benefit local LGBTQ+ nonprofits!

Wednesdays in July & August: Ice Cream Night!

Join us from 5:30PM-7PM for ice cream sundaes and a trolley ride!
Admission is only \$10/per person; children 2 and under are free.

We partner with a different nonprofit from our community at each Ice Cream Night, and they will get 50% of the proceeds! Check out our website Event Calendar for a list of benefiting nonprofits.

July

Friday, July 1st: Canada Day. Canadian residents' admission is free. Special cars in our Canada collection will be on display.

Saturday, July 2nd: Boston Day. Transit artifacts from the Boston collection will be featured.

 **Sunday, July 3rd: Seashore Turns 83!** Celebrate with us with treats and behind-the-scenes tours!

Sunday, July 10th: Moxie Day! Free samples of Moxie and Diet Moxie.

Saturday, July 16th: Connecticut Day. Admission for CT residents is half off! Special cars in our CT collection will be featured.

Saturday, July 23rd: All Women Crew Day. Celebrate the role women have played in transit history! BAMs will be offered throughout the day.

Sunday, July 24th: Crazy Hat Day! Wear a crazy hat today and get free admission! Regular hats worn on usual days don't meet this definition.

Saturday-Sunday June 30th-31st: First Responder Day. To show our appreciation, first responders' admissions are free.

Free Story Time! Wednesdays – Fridays, July 13th- August 19th @ 10:30AM Join us for a fun, 30-minute story time. Bring a picnic lunch!

August

Saturday, August 6th: Dog Appreciation Day. Dogs are welcome every day at the Museum, but come today for special dog-friendly door prizes!

Saturday-Sunday, August 13th-14th: COVID-19 First Responder Days. Free admission to health care professionals who have been on the front lines during the pandemic. Show your badge in our Museum Store.



Saturday, August 20th: Members Day & Open House. Members have the opportunity to ride and operate special cars in our collection and participate in special workshops! Admission is free for all guests.

Saturday, August 28th: Pirate Day. Aaarghhh! Walk the plank to the museum today dressed as a pirate and get free admission!

Sunday, August 28th: Massachusetts Day. MA residents are half off!

September



Saturday-Sunday, September 3rd-4th: Model Railroad Layout Days.

Check out model layouts and displays in our Exhibit Room! The Pump Car will be out on Sunday for guests to enjoy, weather permitting.

Sunday, September 11th: Grandparent's Day. Grandparents' admissions are free!

Pumpkin Patch Trolley

Fridays-Sundays & Indigenous Peoples' Day

September 23rd-25th, 30th – October 2nd, 7th-10th & 14th-16th

Ride a trolley to the Seashore Pumpkin Patch to pick out a pumpkin to take home and play fun, fall festive family games and activities!

October

Saturday—Sunday, October 22nd & 23rd: Teacher Appreciation Days.

To show our appreciation, teachers' admission is free! All teachers will receive a free chance to enter to win door prizes!

Friday — Sunday October 28th-30th: Happy Trolleyween! Participate in our "ghost hunt" for a chance to win a free 2023 family membership! Costumes are encouraged.

December

Friday-Sunday, December 2nd-4th and 9th-11th: Christmas Prelude

Trolley Rides! Ride on heated, decked out trolleys, free hot chocolate, SANTA and more! Check out our website for the details as the event gets closer, and be sure to purchase tickets in advance of your visit.

Regular Admission

Adults (ages 16 – 59): \$13.00
Adults (ages 60+) and
Children (ages 6-16): \$11.00
Children (ages 3 – 5): \$5.00
Children (ages 0-2): Free!

Become a Member!

Individual Membership: \$40
Youth up to age 18: \$25
Plus One (Share with a Friend!) or
Family Membership: \$60

For more information, the most up-to-date schedule, and to purchase tickets, please visit trolley museum.org



Dallas 434

MAJOR OVERHAUL

By Brian Tenaglia

Dallas 434 was built in late 1914 by the American Car Company of St. Louis, Missouri. The car was part of a 35-car order for the Dallas Consolidated Street Railway System, which was owned by the Stone and Webster Company. These cars were very similar to other cars built for Stone and Webster properties starting in 1910, and this entire group of cars became known as Stone and Webster “Standards”. They were one of the earliest efforts of Charles O. Birney, an engineer at Stone and Webster, who would later become famous as the designer of the Birney Safety Car.

One notable feature of these cars was the use of Brill 39E “maximum traction” trucks. These trucks were designed for only one motor (65 HP GE 201-G in 434’s case), which drives the large “driver” set of wheels. The “pony” or “idler” axle was un-driven, and had considerably-smaller wheels. These were usually tucked under the platform to allow a low entrance height. The truck bolster (the large casting which carries the weight of the carbody on the truck) is offset towards the driver axle to put more weight on the drivers, leading to the “maximum traction” moniker. The Brill 39E was neither the first nor the only “maximum traction” design, although Brill’s position in the industry led to its widespread adoption. The 39E was introduced in 1908 and saw usage throughout the “heyday” of the trolley era pre-1920. The shortcomings of this design (poor ride at speed, wheelspin) led to newer city designs using small-wheel trucks, enabled by the development of improved small motors in the late 1910s and early 1920s. Older cars with Brill 39E trucks, however, often remained in service “til the very end.”

Dallas 434 was acquired by Seashore in 1954. The car represents the last intact, original example of a Stone and Webster “Standard.” For most of its life at the museum, the car has been an integral part of the operating fleet, running a few thousand miles a year in many cases. However, issues were long-noted with the suspension and brakes, and mechanical issues with the trucks were becoming apparent. The car was not run in revenue service in 2020 or 2021 due to these issues (although it was moved at least once under its own power both years). The goal of this major restoration overhaul is to put the car mechanically into a condition which will allow daily operation for the foreseeable future.

Work on 434 started in earnest in December of 2021, after the fleet had been made ready for Christmas Prelude. The car was operated to Track 2 in the center of the Shop, where the brake rigging and motor leads were disconnected and several pieces removed (such as door linkages and kingpins) to facilitate removing the trucks. The body was then lifted from the trucks using the Shop’s Enerpac hydraulic lift.

During this process, it became apparent that the body bolster on the #1 end of the car was misaligned; further inspection revealed damage to the mounting points and damage to the wooden floor supports surrounding the bolster. Work on this area is planned for the summer of 2022, and work for the winter proceeded on disassembling and repairing the #1 truck, which appeared to be in worse condition than the #2 truck.

After rolling the #1 truck from under the car, the motor axle caps and gearcase were removed. The motor was removed and put in temporary storage. The truck frame and axles were then steam-cleaned to remove some of the heavy grease accumulation. The frame was rolled into the metal shop and the axles and journal boxes were removed.

Many of the parts were heavily caked with dirt and petrified oil and required numerous cleaning efforts. Significant and unusual wear was noted on the journal boxes and some of the brake components.

Upon removal of the center bearing casting, it was discovered that the truck bolster was cracked in several places. These defects are completely invisible when the bolster is assembled. The driver end frame of the truck was found to be cracked in numerous places around the holes for the motor suspension bolts. Past assembly errors resulted in heavy wear to the inside face of the end frame from the motor suspension springs. This component appears to have been repaired at least twice.

By this point, research had revealed several interesting facts regarding the trucks:

- The journal boxes are of a non-standard design. 434's boxes have large "wings" to fasten the sheet-steel wear liners to the boxes, and use wear liners both on the journal boxes and on the pedestals (the inverted "U" shape that retains the journal box in the truck sideframe). On most other trucks, the journal box liners are either welded into the boxes themselves (often as a repair), or liners are only used on the pedestals.
- Images taken in the late 1940s of similar cars running in Dallas show multiple styles of journal boxes in use, often with different types used on the same car. 434 shows this, as the driver boxes for the #2 truck are of a different, "more standard" design than the driver boxes for the #1 truck.
- The trucks themselves are an intermediate version of the 39E, which is not reflected in other trucks of this type at Seashore. Brill made several running changes to the details of these trucks throughout their production, including major changes to the suspension (the Brill Graduated Spring System), the bolster (the Brill Bolster Guide System) and the arrangement of the brake rigging for the pony axle. 434's trucks have the Brill Graduated Spring System and the revised brake rigging (patented Dec. 1914), but not the later Brill Bolster Guide System.
- The truck sideframes are spaced wider than standard, due to the use of wide "compromise" wheels on Dallas' system. The axles are slightly longer than the AEREA (American Electric Railway Engineering Association, a major standardizing force for "classic" streetcar design) standards.

Disassembly of any mechanical system provides the technician with an excellent opportunity to examine the system and its parts in detail. This can give a great deal of insight into the "why" of a number of issues. During disassembly, it was quickly apparent that various components in the truck were misaligned, causing the unusual wear noted above. The likely causes of this misalignment are:

Accident damage: The damage to the bolsters and brake rigging suggest that the car was involved in an accident violent enough to move the body relative to the trucks. A date of 46 on the pony axle and a flange "bite mark" on the pony end frame suggest the pony axle snapped at some point near the end of the car's career. Collisions with automobiles or other rail vehicles are also likely culprits.

Repair issues: The truck was damaged significantly enough that major components had to be repaired or replaced. While some of the repairs are neat, others are quite shoddy, and some replaced parts were clearly made from scrap. The brazing on the wear liners also suggests a "get it done" repair mentality. The truck also appears to have been repaired more than once.

Much of the wear evident in the truck suspension shows that the springs and suspension were being forced to one side, preventing the suspension from operating properly. While a good deal of this wear could be explained by the



From top to bottom: #1 truck partially disassembled; detail of bolster cracks; cracked end frame, right side; "re-made" gusset plate; repairs on the transom brace, indicated bolt was loose. BT



accident damage mentioned above, it was also found that the suspension was improperly assembled when the truck was last taken apart.

The suspension consists of the truck bolster, which bears on a coil and leaf spring. The bolster has to be able to move up and down, as well as swing side to side, relative to the truck frame, as the car runs. The side to side motion in a Brill 39E is allowed by the loop-shaped swing hangers, pictured here, at each end of the leaf spring. These hangers transfer the load from the bolster springs to the

truck frame, and the truck frame bears on the journal boxes through another set of coil springs. 434's #1 truck was found to have three of the four swing hangers backwards, with attendant scraping and damage on the inboard faces of the swing hangers from the wheels and brake rigging (also pictured). The truck frame was also subjected to heavy wear at the swing hanger bearing surfaces. Interestingly, several historical pictures of sister cars in Dallas show similar issues with swing hanger assembly, and the #2 truck in 434 is assembled improperly as well.

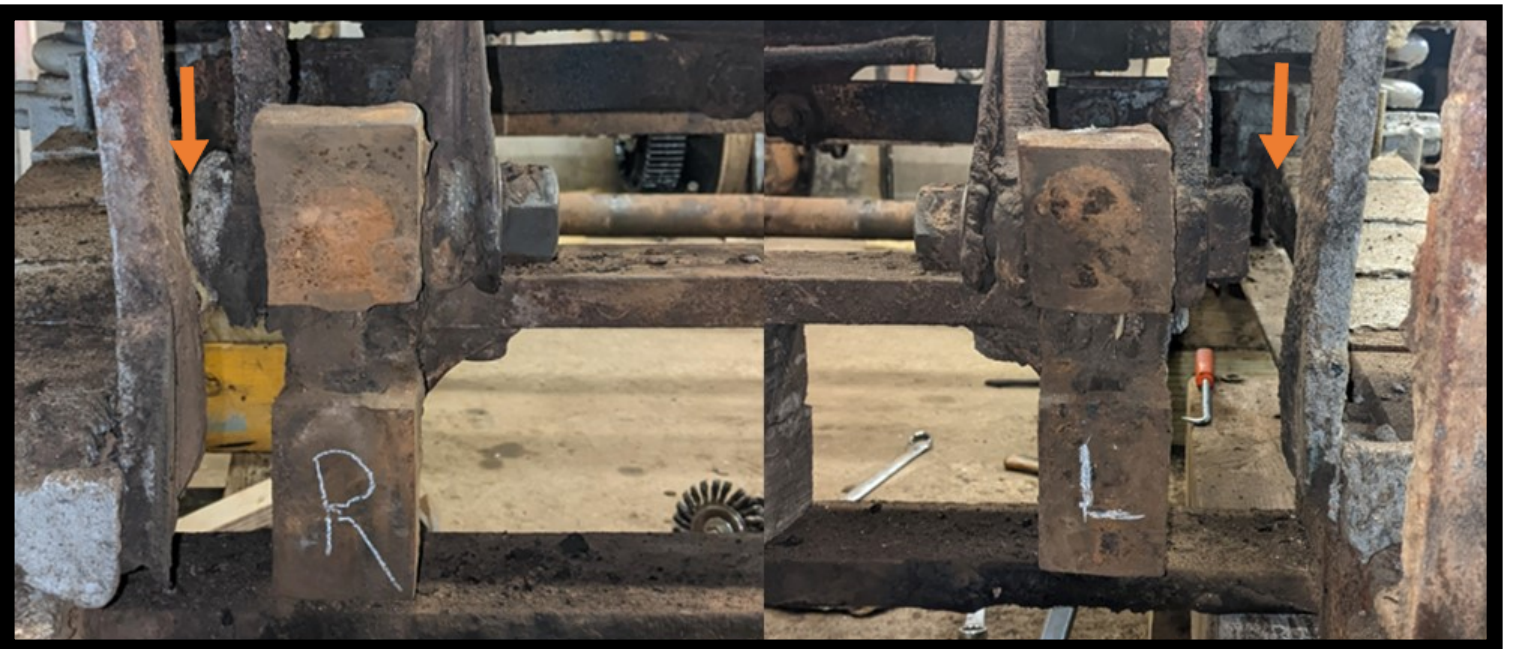
Assembly issues are also apparent in the driver journal boxes for this truck. The non-standard journal boxes and Dallas' piecemeal replacement policy would have made sourcing and stocking the various parts challenging.

434's driver journal boxes have mating features inside the box that interlock with the journal bearing shells, holding the shells in the correct place in the box. Thrust loads (i.e. loads along the axle, such as those from cornering) are supported by lugs at the front and rear of the bearing shell, which prevent the bearing shell from moving more than a small amount. The position of the features which interlock with these lugs is different between the journal boxes on 434's #2 axle and the "standard" box for this size journal. At some point in the past, an attempt was made to fit "standard" journal shells into this box. The shells were roughly modified in an attempt to make them fit, and the boxes themselves may also have been modified. Unfortunately, this work did not consider the difference in lug distance mentioned above, and the distance on the modified shell ended up shorter than the distance in the box. This resulted in the journal boxes not sitting flat on the axle, meaning they were also likely misaligned in the pedestals, compounding the wear issues noted above.

Identifying issues such as those noted above is important, but does not provide a direct path to repair without further information. For example, saying, "The truck frame is bent", does not provide enough information to fix it; being able to describe how much the frame is bent and where is much more useful. By mid-February, the truck frame had been stripped of nearly all components for measurements.

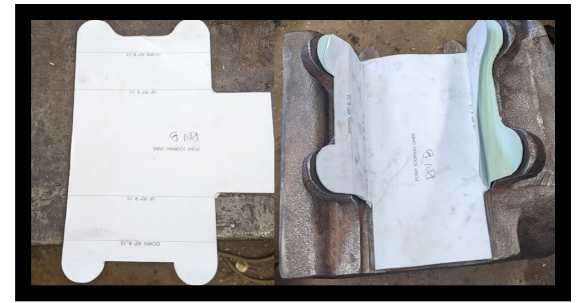
One of the most critical measurements in a truck is the "tram" measurement, which defines how parallel the axles are to each other. The side frames and pedestals need to be square and parallel to each other, and the side frames must be properly aligned side-to-side. Measurements quickly revealed that this was not the case for 434's #1 truck, with the truck being out of tram by $\frac{3}{4}$ " or more.

To help further define how the truck frame is bent, a laser level/square system was used. This device emits self-leveling vertical and horizontal beams, which can be aimed at various points to check for squareness. The position of the beam can also be measured relative to a surface with a tape measure. While none of these features are unique to the laser, it provides an easy, accurate way of taking measurements that would be more difficult to take otherwise.



The truck frame was first leveled and its centerlines established. The laser was then used against these references to take various measurements. The laser was also used on the pedestal surfaces directly to check for alignment. The laser was “shot through” several holes to check for alignment as well.

These measurements indicated, from the perspective of an operator at the #1 end of the car, that: the forward pony pedestals were significantly bent to the right and that these were the worst bent in terms of inboard/outboard; the pedestal surfaces were generally square fore/aft; the left sideframe led the right sideframe slightly; the tops of the sideframes were not at the same height; the sideframes were the same distance apart but the centers of lines through corresponding points were not on the drawn centerline; and the driver endframe was significantly twisted as well as bent.



Following these measurements, the truck frame was sent to AC Electric for sandblasting. When it returns, the pedestals will be straightened and the damaged parts replaced. The swing hanger bearing surfaces will also be built up where needed. The cracked bolster was brought to the Grafton and Upton Railroad for repair. After sending these parts out, work turned to designing and prototyping parts for the journal boxes.

As noted, drawings for the journal box wear liners were not available, and issues with modification of the journal bearing shells had already caused alignment issues in the truck. Manufacturing any prototype is expensive, but new designs need to be verified before they can be produced. The cost of mistakes or oversights can become very high, particularly if the project moves into production before these issues are caught. These issues become more serious for small production runs, so it is important to verify designs as far as possible before committing to (i.e. paying for) production.

The wear liners for the journal boxes were verified using “Cardboard-Aided Design” (see photo above). The original wear liners were measured and the measurements were used to create 3D models. Using the sheet metal features in Solidworks, these models were flattened into patterns, which were then printed out full-scale and glued onto a piece of tagboard. The parts were cut out with scissors and bent on the indicated lines with the Shop’s sheet metal brake. The resulting parts were then checked against the journal boxes for fit. Any revisions could then be quickly checked for minimal cost. The verified designs are being sent to Don’s Sheet Metal in Biddeford for prototype and eventual “full-scale” manufacturing; using CAD also simplifies interfacing with the CNC machines found in most industry and helps to streamline the manufacturing process.

The issues of prototype verification become more critical with more-expensive parts, since the “cost of being wrong” increases. This is a particular issue with the journal bearings, which would require considerable expense in patterns to cast, or would require extensive (and expensive) machining from billet. Initially, the journal bearings were thought to be more or less “standard,” so models of “standard” bearings from the AEREA engineering manual were created. 1:1 scale drawings were then created as above and were compared to the shells; it was quickly apparent that the profiles did not match. The design was then revised.

Since the journal bearing cannot be simply folded from a flat sheet, the scale drawings were glued onto plywood and cut out with the Shop bandsaw. An end view of the bearing was produced in the same way to check fit on the top of the bearing. In order to check the lug spacing mentioned above, a nail was driven into the wood pattern with the edge of the nail head at the same position as the edge of the rear lug.

The journal bearing models still need to be verified using a 3D-printed model; however, the simple verification here has allowed issues to be corrected before 3D printing, saving downtime and cost.

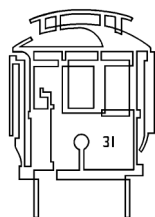
Work over the next few months on the #1 truck will include:

- Repairs to worn surfaces inside journal boxes and on truck frame
- Straightening truck frame and replacing parts as needed
- Production of new wear liners
- Repair/replacement of journal bearing shells
- Design of brake shoe heads
- Repair/replacement of brake rigging components
- Repair/replacement of swing hangers and associated hardware
- Replacement of worn pins and bushings
- Addressing the issues with the carbody bolster and the surrounding structure
- Painting and reassembly

Much of the work undertaken on the #1 truck will be directly applicable to the #2 truck, which will reduce the amount of design and analysis which needs to be done. The condition of the major components of the #2 truck (i.e. bolster cracks), however, remains somewhat unknown.



Three design revisions for driver journal bearing. BT



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