

The Nine Lives of Line Car D-23

By Steve Thomas



Over the past two winters, volunteers at the East Troy Railroad Museum repaired and repainted one of the original pieces of equipment from The Milwaukee Electric Railway & Light Co. (TMER&L). Car D-23 is a line car, which is a special piece of utility equipment used to maintain the overhead wire and the support systems that hold the overhead wire in place.

Car D-23 is a special piece of equipment first because it is so old, and second because it is so essential to the operation and maintenance of our electric railroad. Something is always happening to the overhead, whether because of age and weather, or because storms knock trees down on the line, or because motorists seem to be magnetically attracted to the poles and guy wires that hold the overhead in place. D-23 needs to be ready at a moment's notice to assist the overhead team with repairs.

Our volunteers noticed that the condition of some parts of the wood siding on the car had deteriorated. It was clear that a new coat of paint was in order. A volunteer team replaced the damaged or rotted wood, then primed the new sections and gave the entire car a fresh coat of yellow paint.

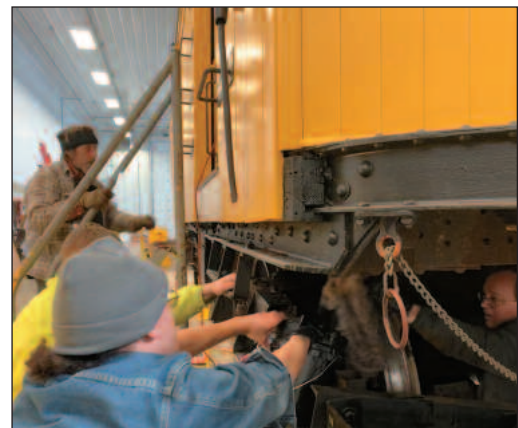
While the car was being prepared for painting, the maintenance team ran

▲ Car D-23 crosses Division Street in East Troy in the summer of 2013. —East Troy Railroad Museum Photo Archives



▲ Jerry Borzych, on the ladder, works to prime wood siding that has been repaired or replaced. Steve Southworth and Joe Buerger look on. —East Troy Railroad Museum Photo Archives ▲ Joe Buerger (left) and Mike Jaehn attach new trim to the car. —Ryan Jonas photo

▼ Jerry Borzych poses after he had completed his work. —Tom Fleming photo ▼ John Jonas (right) passes new wicking material to Dustin Robinson and Elijah Jackson. Mike Heck is holding the railing in the rear. —Korey Kumbier photo



through a checklist of items that might need attention. They found that D-23's governor for the air brakes was worn out and prepared for an upgrade to an S-16 governor, the standard used in most of the railroad's operating equipment. The floor inside D-23, near where the air governor was mounted, was also replaced.

The crew also discovered that two bearings were cracked and needed replacement. Since the car is more than 100 years old, it doesn't have roller bearings, which were an innovation that didn't catch on until the 1940s and 1950s. It has old-style friction bearings, with journal boxes, which are designed to provide constant lubrication. They use a special type of oil and something called "wicking," which keeps the oil in contact with the axles and bearings. After the team installed the new bearings, they re-wicked and re-lubricated all the journal boxes.

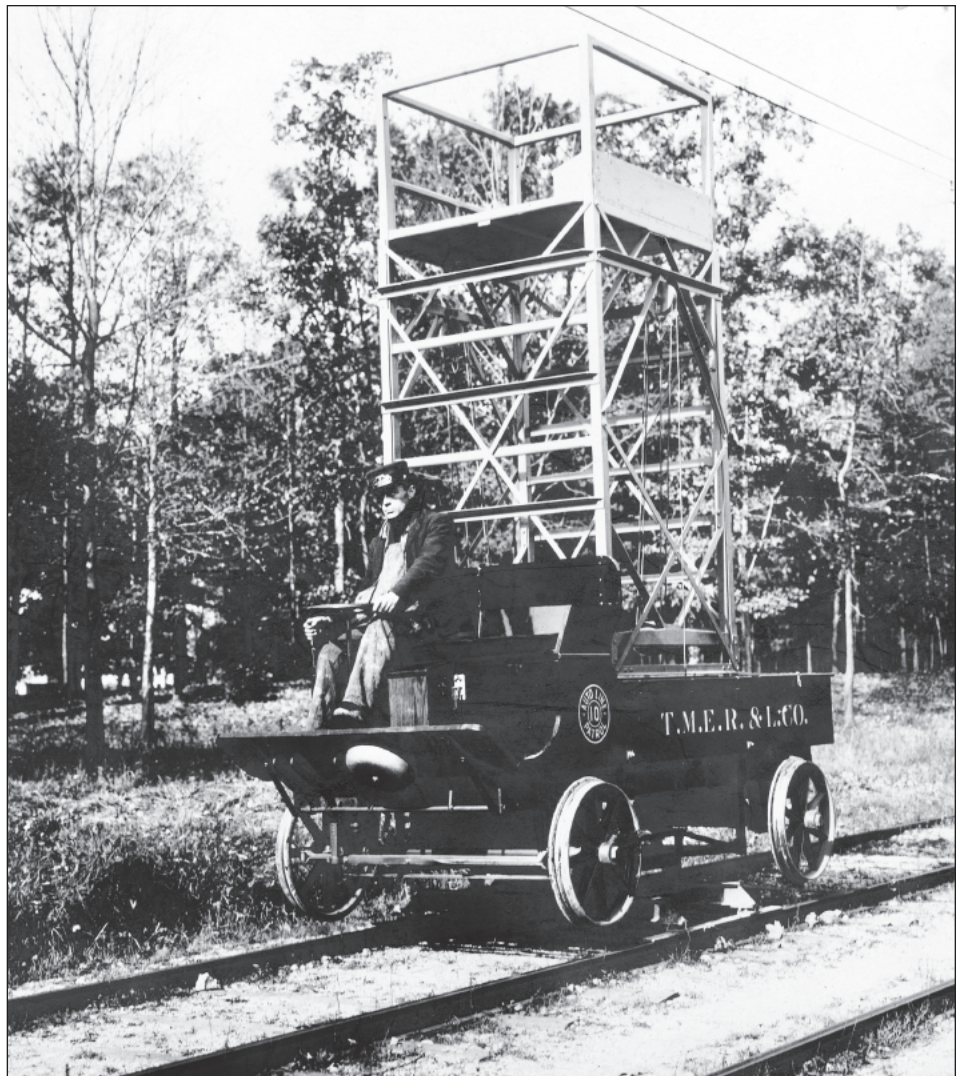
They also inspected, cleaned and lubricated the 600-volt controllers, changed the compressor oil, and rewired the 600-volt compressor circuit. Then they mounted the rebuilt S-16 governor and plumbed the air line in with a desiccant filter. Once everything had been connected, they tested the new governor in conjunction with the compressor and braking systems and found them to be operating properly.

Just weeks before this article's submission, the maintenance team serviced the commutators on the car's motors and replaced many of the nuts and bolts on the truck frames. They also cut an inspection hole in the floor of the car to make it easier to see and service the motors. D-23 may now be in the best shape of its long life.

So that begs the question: how did an electric utility car built in 1907 survive and thrive for 112 years when "newer, better, cheaper" equipment arrived, abandonments happened, railroads were sold and then shut down, and the entire transportation system in the United States was remade multiple times up to its current configuration?

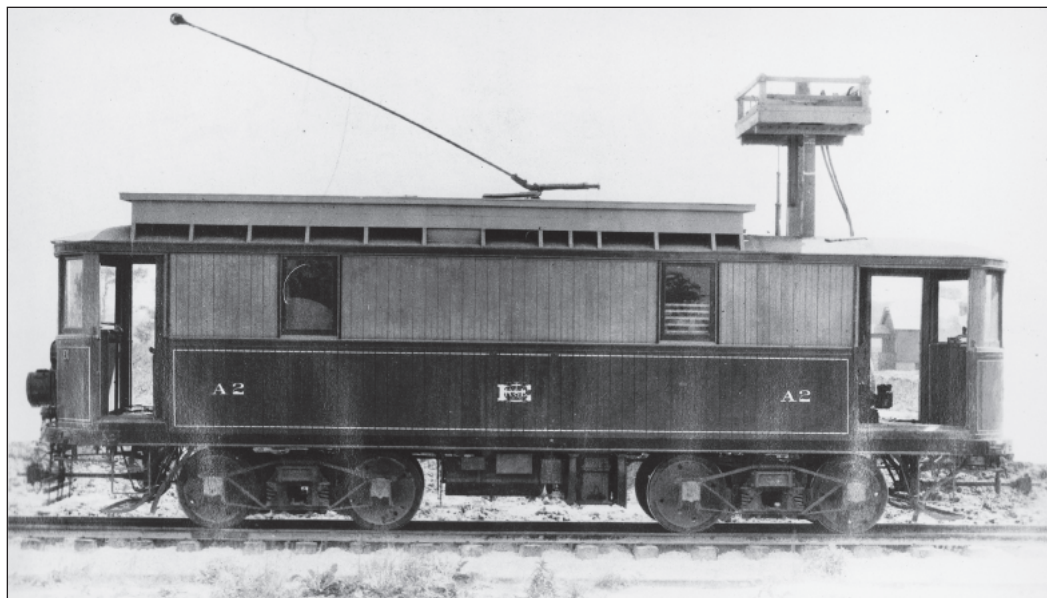
The answer seems to be a combination of good genes, good owners, necessity, luck and love. Our story starts with the good genes.

In 1907, TMER&L built car D-23 in its own Cold Spring Shops in Milwaukee. Originally a motorized flat car with a roof, it was powered by four GE-205-B traction motors and later upgraded to 125 horsepower GE-205-C motors. It is 54 feet long



▲ Auto Line Patrol #10 in the early days of TMER&L. These truck-mounted line cars, sometimes called tower trucks, could operate on rails or city streets. —Wisconsin Historical Society - WHS-142681

▼ The "builder photograph" of new line car A-2, one of two new cars built in the Cold Spring Shops in 1918 to replace single-truck models being retired. —Wisconsin Historical Society - WHS-142682



and weighs 30 tons. The car had passenger-style trucks so it could respond quickly to trolley emergencies. By 1914, the car had been enclosed and was listed as a line car in TMER&L company archives¹, along with line cars D-21 and D-22, which had identical valuations in the hand-written spreadsheets.

However, these three were not the only line cars on the TMER&L roster in the first 20 years of the last century. There were also truck-mounted line cars, similar to the horse-drawn line cars, which were first used to string electric wires over the former routes of the horse-drawn trolley system. The truck-mounted line cars (also called Tower Trucks) could quickly get to routes in the city and maneuver into position to make repairs. An example of an early truck-mounted TMER&L line car is Auto Line Patrol #10, found nearby.

Another type of line car was a single-truck car, often used in conjunction with a tool car and a flat car carrying reels of overhead wire. A 1907 *Street Railway Journal* article² describes how trolley wire was strung on the TMER&L using these cars:

“The train consists of a line car, a tool car and a car carrying the reels of wire. In stringing the wire the reel car is shoved ahead and current to operate the line car is taken from the wire

being strung. The wire is first tied up temporarily to the brackets.

The line car employed is provided with an extra controller, located inside the car near the center. It is provided with operating and reversing shafts, which extend through the roof of the car and are attached to the adjustable platform. The connecting rods between the controller and the handles are arranged to telescope one within the other as the platform is lowered. A ladder attached to the side of the car, which swings outward, permits working on the poles.”

The single-truck line cars were gradually replaced with newer double truck line cars, such as car A-2 shown nearby. This car was one of two built by TMER&L's Cold Spring Shops in 1918. However, cars D-21, D-22 and D-23 remained important to the railroad. They were fast cars built to respond quickly on the interurban routes, while the other line cars worked mostly in and around Milwaukee. Car D-23 was substantially rebuilt in 1929, according to company records.

It appears that D-23 worked mostly the Waukesha-Watertown route, while D-22 handled the Muskego Lakes division and D-21 covered the Milwaukee-Racine-Kenosha line. Milwaukee Northern line

car 202 handled the line from Milwaukee to Sheboygan.

In 1938, TMER&L was forced to separate its power generating business from its transportation business. The power business became the Wisconsin Electric Power Company (WEPCo), which is today's WE Energies. The transportation business became TMER&T.

When most of TMER&T was sold to Kenosha Motor Coach Lines, between 1942 and 1946, WEPCo kept D-23 and assigned it to the Port Washington Power Plant. The company also kept D-22, which was assigned to the Lakeside Power Plant in Milwaukee. Line cars D-21 and 202 were sold to the Kenosha Motor Coach Lines³ and later scrapped.

When car D-23 started work at the Port Washington plant, it was renumbered as D-3 by simply painting out the “2” in its former number. Like car D-22 at the Lakeside Power Plant in Milwaukee, D-3 kept the rail lines into the plant cleared of snow so that the coal cars could be delivered on schedule to the coal-fired power plant. Wisconsin Electric was using steeple cab electric locomotives to move the coal cars, so the overhead had to be maintained as well. The photographic record indicates that D-3 continued working in this capacity into the late 1960s.

1. The Wisconsin Historical Society Archives at the University of Wisconsin-Milwaukee.

2. The Street Railway Journal, Volume XXX, July to December 1907, Page 165.

3. The Wisconsin Historical Society Archives at the University of Wisconsin-Madison.



▲ Car D-(2)3 at the Port Washington turnaround sometime in the early 1940s.—Image courtesy of the California State Railroad Museum

In late 1971 or early 1972, D-22 and D-3 were sold to The Wisconsin Electric Railway Historical Society (TWERHS) and moved to East Troy. TWERHS planned to begin operating tourist trolleys on the weekends over the Municipality of East Troy Railroad (METW). METW maintained an interchange with the Soo Line in Mukwonago to bring freight into and out of East Troy over the last remaining original segment of the TMER&L interurban line. While METW had transitioned to a diesel locomotive to move its freight, the overhead line was still intact and the TWERHS group received permission to use and maintain the overhead for its tourist trolleys.

The photo nearby, of D-23 at Beulah Siding in January of 1972, suggests that the car had not received much love from Wisconsin Electric in its later years there. However a photo from the late 1970s shows that the car had been re-sided and repainted, and the original D-23 number restored. Another nearby photo, taken in January 1982 shows D-23 and its crew making a repair on what looks to be a very cold day.

In 1984, the Village of East Troy decided not to renew its operating lease with the TWERHS group and invited the Wisconsin Trolley Museum to come in to operate the railroad for the village. The Wisconsin Trolley Museum, which became the Friends of the East Troy Railroad, moved its small roster of cars to East Troy, took over operation of the freight railroad, and made plans to continue operating tourist trolleys. The TWERHS group, without track on which to operate, started working to sell the cars and equipment it owned to other tourist railroads and museums.

And now for the “luck” part of the story: line car D-22, along with a number of other cars, went to the Illinois Railway Museum in Union. Line car D-23 and locomotive L-8 were sold to the Fox River Trolley Association in South Elgin. However by 1988, the Fox River group had not been able to arrange to ship the cars to Illinois. The Friends of the East Troy Railroad, meanwhile, had been doing pretty well and had received a large donation from Russel Schultz of Wauwatosa, Wis. The Friends group approached the Fox River Trolley Association and offered to buy both cars and keep them in East Troy. The Fox River group agreed to the sale and car D-23 had another lease on life.



▲ Car D-23 at the Beulah siding, on the East Troy line, in January 1972.

▼ Car D-23 just east of the East Troy depot (also the WEPCo substation) in the late 1970s. The car had obviously received some love and attention from its new owner. —Two Russ Porter photos



Newsletters from the Friends Group in 1989 and 1990 detail the work done to repair D-23 and restore it to regular service on the East Troy Railroad. One photo from the time shows that they thought the car had originally been car D-21, so they renumbered it to reflect what they felt was the historically correct number. However others pointed out the long, documented

history of the car as D-23 (or D-3 in its Port Washington days) and the correct number was restored.

The roof of D-23 has three mechanical platforms to allow access to the overhead wire for maintenance and construction. The center platform rises some five feet via a 600-volt motor inside the car, and then has a swing-out extension that enables the

repair crews to reach the line poles. Much like the single-truck line car described earlier, D-23 has roof-mounted controls that allow operation of the car from the platforms above it.

The mechanical platforms are insulated from the rest of the car, so the overhead repair crew can work on energized wire without having to worry about being shocked or electrocuted. The interior of D-23 has workbenches, tools, numerous bins filled with repair parts, storage cabinets,

and a trolley-wire dispensing reel.

While you can argue about whether the car has really experienced “nine lives,” you can definitely still find D-23 working in East Troy to help maintain the overhead line on the only remaining portion of TMER&L’s interurban network. How many other engines or railroad cars have been operating continuously since 1907? Have any cars besides D-23 spent more than 112 years operating on segments of the original line for which they were built?

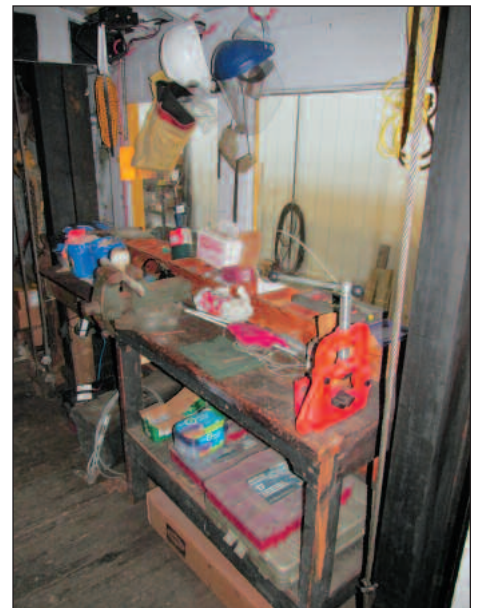


▲ The crew of D-23 makes a repair to the overhead line on January 30, 1982. —Russ Porter photo

▼ On February 2, 2019, 37 years after Russ Porter took his classic winter repair photo, Chris Schmidt and Zach Frame are on top of D-23 making a similar repair. —Haylee Wilcox photo



▲ The interior of D-23 today, looking toward the west end of the car. —Author’s photo



▲ The workbench has bins with smaller parts along the back. How many men have used this bench to make repairs since 1907?

▼ Here is the control stand at the east end of the car. The interior of the East Troy Railroad’s maintenance facility can be seen through the windows. —Two Author’s photos





▲ Car D-23 plowing snow on the East Troy Electric Railroad on February 2, 2019. —Tom Fleming photo