Carolina Conductor

Volume 4 Number 12 **Monthly Newsletter of the Carolina Railroad Heritage Association, Inc.** December 2017

Preserving the Past.
Active in the Present.
Planning for the Future.

Web Site: hubcityrrmuseum.org
Facebook: Carolina Railroad Heritage Association

Meeting Site:
Woodmen of the World Bldg.
721 East Poinsett Street
Greer, SC 29651-6404
Third Friday of the Month at 7:00 pm

Hub City Railroad Museum and SOU Caboose #X3115:
Spartanburg Amtrak Station
298 Magnolia Street
Spartanburg, SC 29301-2330
Wednesday 10-2 and Saturday 10-2

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Articles and club news due by the 2nd Wednesday of month.

Electro-Motive

Part 2

As the 1960s opened EMD was compelled to respond to the challenge offered by GE's U25B, upgrading the features of their GP (General Purpose) and SD (Special Duty/Standard Duty) series locomotives, boosting the power of their 567 engines, then developing the more powerful 645 engines. Those endeavors as well as the feature upgrades introduced with the SD40-2 were sufficient to maintain EMD's competitive advantage over GE until the mid-1980s.

In late 1965, EMD introduced the enlarged 645 engine. Power ratings were 1,500 hp V-12 non-turbocharged, 1,500 hp V-8 turbocharged, 2,300 hp V-12 turbocharged, 2,000 hp V-16 non-turbocharged, and 3,000 hp V-16 turbocharged. In late 1965 EMD built their first twenty-cylinder engine, a turbocharged 3,600 hp V20 for the EMD SD45. The final variant of the sixteen cylinder 645 (the 16-645F) which produced 3,500 hp.

EMD SD45 locomotive.

In 1972, EMD introduced modular control systems with the *Dash-2*

NS #6100 an EMD SD40-2 with upgrades including the "Admiral" cab.

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Arrivals

EMD—Oddballs –One-Offs—May Never Have Been

SD89-MAC

EMD "T"

GP80 - two GP40's?

EMD-Clyde Engineering double ended F unit in Australia.

EMD GM10B electric loco #1976.

Departures

Continued from Page 1 - *EMD*

line; the EMD SD40-2 became one of the most successful diesel locomotive designs in history. A total of 3,945 SD40-2 units were built; if the earlier SD40 class locomotives are included, the total increases to 5,752 units.

EMD introduced their new 710 engine in 1984 with the 60 Series locomotives (EMD SD60 and EMD GP60), the EMD 645 engine continued to be offered in certain models (such as the 50 Series) until 1988. The 710 is produced as an eight-, twelve-, sixteen-, and twenty -cylinder engine for locomotive, marine and stationary applications. Concurrently with the introduction of the 710, EMD's control systems on locomotives changed to microprocessors, with computer-controlled wheel slip prevention, among other systems.

EMD GP60 & SD60 demonstrators #'s EMD5 & EMD1.

After the Canada-U.S. Free Trade Agreement came into effect in 1989, EMD decided to consolidate all locomotive production at the GMD plant in London, Ontario, a development which ended locomotive production at the La Grange, Illinois plant in 1991 although the Illinois facility continued to produce engines and generators. EMD's North American market share dropped below that of its main competitor General Electric in 1987.

In the late 1980s and 1990s EMD introduced AC induction motor drive in EMD locomotives using Siemens technology.

EMD-Siemens Amtrak F69PH-AC demonstrator locomotive.

In the early 1990s, EMD introduced the radial steering truck, which reduced wheel and track wear.

In 1998 EMD introduced the four-stroke sixteen cylinder 265H-Engine, at 6,300 hp the most powerful engine ever produced by EMD, used as the prime mover in the EMD SD90MAC-H locomotive. Instead of completely replacing the 710-series engine, the H-engine was concurrently produced alongside EMD's two stroke engines, although mainly for export. Acceptance of the 265H was limited over reliability issues. As a historical note, the 265H was the first four-stroke engine offered to the market by EMD or its ancestral companies since the Winton 201A introduced their breakthrough in two-stroke Diesel power in 1933.

Post-1995 710 engines have electronically controlled unit injectors (EUIs) in the same position and space as the former (1938–1995) unit injectors.

In 1999, Union Pacific placed

EMD SD90-MAC UP #8160 suffered reliability issues.

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the largest single order for diesel locomotives in North American railroad history when they ordered 1,000 units of the EMD SD70M. Union Pacific's fleet of SD70Ms has since been expanded by more than 450 additional units. In addition, Union Pacific also owns nearly 500 EMD SD70ACe's, a number of which have been painted in "Fallen Flag" commemorative liveries. All of these locomotives are 710G-powered.

EMD SD70M UP #5231 part of the 1000 unit order.

2000-present

The year 2004 saw CSX Transportation take delivery of the first SD70ACe units, which were advertised by EMD as more reliable, fuel efficient, and easier to maintain than predecessor model SD70MAC. The model meets the EPA Tier 2 emission requirements using the two-stroke 710 diesel engine.

EMD SD70ACe CSX #4848.

The following year Norfolk Southern became the first carrier to receive the new SD70M-2 - successor to the SD70M. Like its sister road switcher, the SD70ACe, the SD70M-2 meets EPA Tier 2 requirements using the same engine. And like the ACe, the M-2 is certified to be in conformance with ISO 9001:2000 and ISO 14001:2004.

In June 2004, *The Wall Street Journal* published an article indicating EMD was being put up for sale. On January 11, 2005, Reuters published a story indicating a sale to two private U.S. equity groups was likely to be announced this week. Confirmation came the following day, with a press release issued by General Motors, stating it had agreed to sell EMD to a partnership led by Greenbriar Equity Group LLC and Berkshire Partners LLC. The newly spun-off company was called Electro-Motive Diesel, Inc., thus retaining the famous "EMD" initials. The sale closed on April 4, 2005.

EMD's headquarters, engineering facilities and parts manufacturing operations are based in McCook, Illinois, while its final locomotive assembly line is located in Muncie, Indiana. EMD also operates a traction motor maintenance, rebuild and overhaul facility in San Luis Potosi, Mexico.

EMD SD70M-2 NS #2699.

As of 2008, EMD employed approximately 3,260 people, and in 2010 it held approximately 30 percent of the market for diesel-electric locomotives in North America.

The U.S. Environmental Protection Agency's Tier-4 locomotive emissions regulations on new locomotives went into effect on January 1, 2015. As of that date EMD's 710-engined locomotives (e.g. SD70ACe's) could be built only for use outside the contiguous United States (i.e. Canada, Alaska, Mexico, and overseas). EMD had originally thought the 710 engine could be modified or "tuned-up" to meet Tier-4 standards, but it was not able to meet those requirements while maintaining optimum performance and reliability during rigorous real world conditions tests. Development of a Tier-4 compliant locomotive shifted from its original focus on the two-stroke 710 to the four-stroke 1010J engine, derived from the 265H engine.

The first locomotive using the 1010J engine, the SD70ACe-T4, using a 4,600 horsepower 12-cylinder engine was unveiled in late

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Rare Mileage

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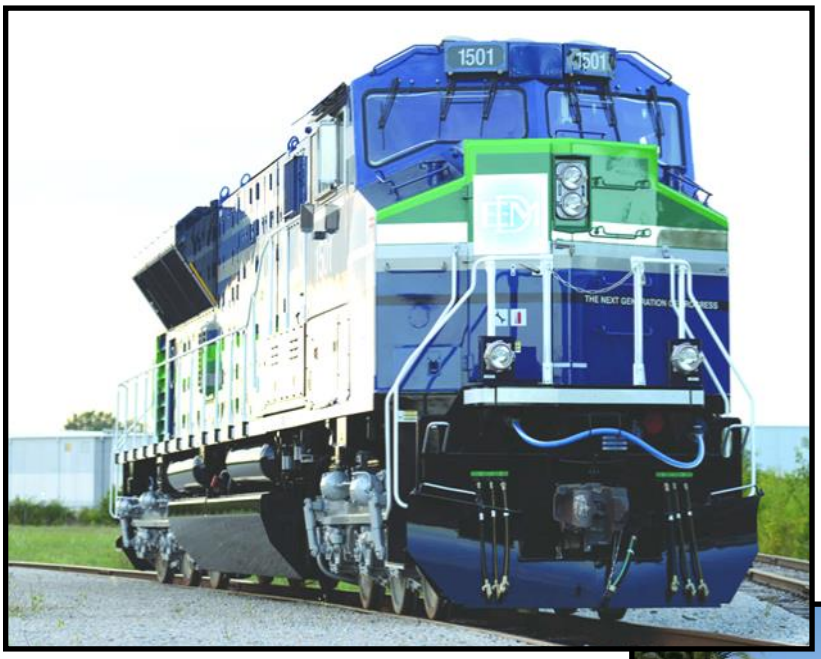


EMD SD70ACe-T4 demonstrator locomotive #1501.

EMD SD70ACe KCS #3997 ex-EMDX 71.

2015. Testing of the new locomotives began in the Spring of 2016. The first two units of a 65-unit order for the new locomotive were delivered to Union Pacific in December 2016.

EMD continues to offer 710-powered locomotives for export as well as "ECO" upgrade packages for modernizing of older locomotives, which sustained their business during the hiatus of locomotive production for the domestic market.

EMD F59PH Amtrak #457.

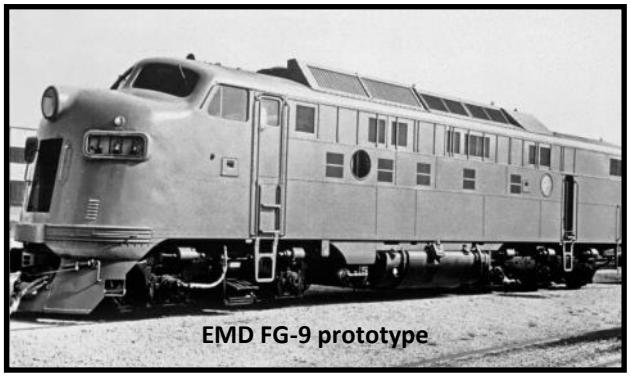
EMD upgraded GP30-ECO NS #4715.

EMD upgraded SD30-ECO BNSF #1320.

Marker Lights

EMD Export Models


Egyptian Railways Class 66


EMD FG-9 prototype

EMD NF110 Newfoundland Rwy #906

Brazilian Railways GT46AC

EMD GT18 American Latino Logistics #9405

Wanted—Articles for the Carolina Conductor

Submit an article of 200 words or more with some photos and captions and see them in print. Every one of us has some unique railroad experience that would make interesting reading for our membership. Your editor always needs more contributions of local railway history and news.

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