Carolina Conductor

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Preserving the Past
Active in the Present
Planning for the Future

Web Site: hubcityrrmuseum.org
Facebook: Carolina Railroad Heritage Association & Hub City RR Museum

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

Meeting Site:
Fountain Inn Presbyterian Church
307 North Main Street
Fountain Inn, SC 29644
3rd Friday of the Month at 7:00 p.m.

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Articles can be submitted anytime.

Diesel Hydraulic Locomotives

This is part two on diesel hydraulic locomotives continued from the December 2022 issue.

Krauss Maffei

Krauss-Maffei ML4000

The Krauss-Maffei ML4000 is a road switcher diesel-hydraulic locomotive, built between 1961 and 1969by German manufacturer Kraus s-Maffei in Munich, Germany. It generated 3,540 horsepower from two Maybach V16 engines. Thirty-seven examples were built for two North American railroads and one South American railroad.

History

In 1959, General Motors' Electro -Motive Division (EMD) rebuilt nine of its GP9 locomotives for the Union Pacific Railroad with pre-production examples of a new turbo -supercharging system that would raise the locomotives' horsepower to 2000. This soon evolved into the GP20.

The Southern Pacific Railroad (who served much of the same territory as UP, a rival) took this into account, as business for SP was growing rapidly. Freight trains were getting longer and heavier, and SP had to use up to ten locomotives to power long-distance freight trains. SP's main workhorses at the time were EMD F7s and GP9s. Although SP had a small fleet of 2,400 horsepower H-24-66 "Train Master" locomotives manufactured by Fairbanks-Morse, SP found that they were not suitable for freight service and were relegated to the San Francisco Bay Area's Peninsula Commutes.

After much research, SP decided to experiment with diesel-hydraulic locomotives and stunned the railroading industry by purchasing three 3,540 horsepower ML-4000 type locomotives from German manufacturer Krauss-Maffei. Delivered by ship and unloaded at the Port of Houston, Texas, on October 31, 1961, they featured two Maybach V16 1,770 horsepower diesel engines and Voith transmissions. The Denver and Rio Grande Western Railroad also ordered three units, but found them unsuitable in moun-

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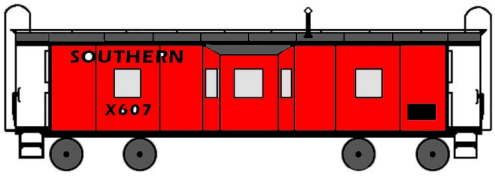
Museum Happenings

Carolina Railroad Heritage Association, Inc.

Red Caboose Award



is presented to

Bob Klempner

for exemplary service to the organization in 2022

Bob Klempner was awarded the *Red Caboose Award* for 2022 at our annual Christmas potluck party. →

He was also given the *Red Fire Truck Award* for volunteering at the Popular Springs Fire Department. ↙

↑ Before painting.

The caboose project continues to progress. Lettering still to be done.

After painting. →

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 railway history and news.

tain service, and they were sold to the SP in early 1964. Upon arrival, a special track was set up at the locomotive shops in Roseville, California, just for servicing the ML-4000s.


Krauss Maffei cab unit #9001 in freight service.

The first order of the ML-4000s are referred to as "cab units," given that they have a fully enclosed car body, similar to that of the EMD F-unit. Following extensive testing SP returned to Krauss-Maffei for an additional fifteen units. Delivered in 1964, they featured the same engines and transmissions but looked quite different on the outside. These are referred to as "hood units" because of their hood type bodies.

SP found the ML-4000s unsatisfactory in service over the Sierra Nevada mountain range, so they were relegated to service in flat territory throughout California, often paired with F7s or GP9s. The locomotives were fairly dependable, with only one recorded failure. Upon ordering the second batch of ML-4000s, SP also purchased three DH643 diesel-hydraulic locomotives from Alco.

Disposition

American locomotive technology began to catch up in the late 1960s, and the operation of diesel-hydraulic locomotives, while useful, was no longer justifiable. SP and other railroads had made their horsepower needs known and American builders responded by increasing horsepower on single-engine locomotives. In 1966, SP first ordered the EMD SD40 and SD45 locomotives from EMD. These new EMD locomotives, along with the U30C and U33Cs from General Electric, quickly became the new high horsepower units of choice. In 1967, a deadline of ML-4000 cab units appeared at the Sacramento Locomotive Works. Hood units soon appeared in the deadline, and the first ML-4000s were retired in September of that year. The Pacific Locomotive Association (the organization that operates the Niles Canyon Railway) came to SP with a request of a diesel-hydraulic powered railfan passenger excursion, preferably with a ML-4000 cab unit. However, the cab units were no longer operational, so hood unit number 9120, along with a pair of EMD FP7s powered a series of railfan passenger excursions in the spring of 1967, the only time an ML-4000 was used in passenger service. On February 13, 1968, SP announced the end of its diesel-hydraulic locomotive program. By the end of the year, all ML-4000s had been retired. The trio of


Cab unit #9002 receives service at the SP shops in Bakersfield.

D&RGW #4001, a cab unit Krauss Maffei diesel hydraulic.

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#9010 in excursion service on the Niles Canyon Railway.

ALCO diesel-hydraulics fared slightly better and were not retired until 1973. The powered trucks were salvaged from some of the scrapped ML 4000's and sold to Plasser & Theurer, where they were installed on that company's self-propelled ballast cleaners.

The Camera Car

Before the end of 1968, all but one of the ML 4000s were scrapped at Sacramento. The survivor, number 9113 (originally numbered 9010) was converted into a "camera car" between 1968 and 1969 at the Sacramento Locomotive Works. It emerged as SPMW #1 but was later renumbered SPMW 1166 due to SP's traffic computer requiring four digits. In June 1969, it was finally renumbered to SP 8799. Its purpose was to record films for a computerized locomotive simulator for engineer training.

The most drastic change in appearance was the locomotive's short hood (or "nose"). It was completely rebuilt to house camera equipment and heavy, thick steel was used for collision protection. The front transmission was removed to house a generator to power the camera equipment. The generator drew fuel from the locomotive's original fuel tank. The two engines

SP camera car conversion of a ML-4000.

and rear transmission, though disabled, remained in the engine for weight. All of the controls remained in the cab so that it could control a locomotive pushing behind it, much like a cab car is used on a commuter train. The camera car could be put on the lead of any train, but it mostly made special trips with just one locomotive behind it for power. SP 8799 was based out of SP's West Colton Yard in Southern California until it was retired in 1984.

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The Brazilian ML-4000s

Estrada de Ferro Vitória a Minas of Brazil ordered four units built to meter gauge in 1966. An additional twelve units were built in 1969. They were the most powerful locomotives for use in meter gauge at that time. Although they had problems with traction (they would sometimes slip on the rails, practically burning them), they stayed in service until the 1980s with the arrival of the EMD DDM45. All of them were scrapped.

The Brazilian ML-4000s at time of delivery.

Original Buyers

Railroad, Quantity, Road Numbers, Notes

Denver and Rio Grande Western Railroad,3, #4001-4003, Cab units; sold to Southern Pacific 9021–9023, later SP 9103–9105

Southern Pacific Company, 3, #9000-9002, C a b units; renumbered 9100-9102

Southern Pacific Company, 15, #9003-9017, Hood units; renumbered 9106-9120

Estrada de Ferro Vitória a Minas (EFVM),16, #701-716, Hood units

Preservation

SP camera car 8799 was donated to the California State Railroad Museum in Sacramento in 1986. Initially, the museum removed its nose for the purpose of having a new nose built to replicate the nose that it had while it was a locomotive as part of its plan for restoration. However, that restoration never came. It sat in outdoor storage in a very forlorn state at the Sacramento Locomotive Works until it was sold to the Pacific Locomotive Association (PLA), along with several pieces of rolling stock. They were moved by the Union Pacific Railroad in summer 2008 from Sacramento to their interchange with Niles Canyon Railway at Hearst in Sunol, California. The Niles Canyon Railway then transferred it to its Brightside Yard. Its restoration is underway by volunteers of the PLA. Initial plans called for cosmetic restoration, including building a replica of the locomotive's original nose, and returning the locomotive to its original number, 9010.

In 2013 the PLA was able to obtain a set of Krauss Maffei trucks from a retired Plasser and Theurer ballast cleaning machine from France. In 2015, they purchased replacement cardan shafts made by the Welte group in Germany. These two developments meant that if the rear Maybach could be made operational that it would be possible for SP 9010 to operate under its own power. On February 14, 2017, the rear MD870 Maybach V-16 diesel engine was successfully started after being unused for 48 years. It ran for about 16 minutes; the engine was turned off, then turned back on for 2 minutes with no problems both static runs, and with a clean exhaust. On March 1, 2017, SP 9010 operated under its own power for the first time, on the Niles Canyon Railway. Finally, on July 20, 2019, No. 9010 made its excursion debut on

SP #9010 before restoration at Niles Canyon Railway.

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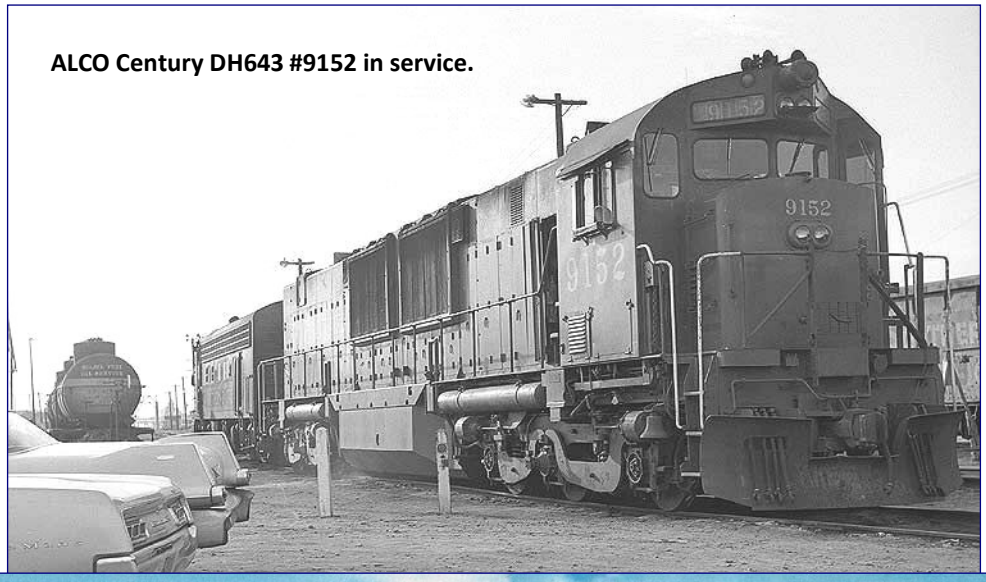
the railway.

ALCO DH643

The ALCO C-643DH, also known as the Century 643DH, was a twin-engine diesel-hydraulic locomotive, the first diesel-hydraulic road switcher built in the United States. It had a C-C wheel arrangement and generated 4,300 horsepower. Only three were built, all for Southern Pacific Railroad in 1964 (#9018–#9020). The Alco C-643DHs joined 21 Krauss-Maffei ML-4000 diesel-hydraulics already on the Southern Pacific's roster. They spent most of their service lives in the flat San Joaquin Valley in California.

Dissatisfaction over the poor performance of diesel-hydraulic locomotives, as well as their use of foreign-made components (the hydraulic transmission was of German Voith design), eventually led Southern Pacific to sell the 3 C-643DHs for scrap in 1973. None of the 3 examples built survived into preservation.



ALCO Century DH643 #9152 in service.

ALCO DH643 #9019 somewhere in the San Joaquin valley.

Southern Pacific

Original Owners

Railroad, Quantity, Road Numbers, Notes

Southern Pacific Railroad, 3, #9018–9020, renumbered #9150–9152

Mt. Mitchell Railroad

Acronym: MMRR **Year Chartered or Incorporated:** 1911 **Year Line Operational:** 1914 **Year Service Ended:** 1921 **Original Starting Point:** Black Mountain, NC **Original Ending Point:** Mount Mitchell, NC

Mt. Mitchell R. R. Train at Ridgecrest Gap. En Route on the Greatest Scenic Railroad in America

SCENIC RAILROAD TRAIN, TO MOUNT MITCHELL, ALTITUDE 6711 FEET. HIGHEST PEAK EAST OF ROCKY MOUNTAINS.

The Dickey & Campbell Company was one of the largest lumber producers in western North Carolina, and in 1911 it began construction of a narrow gauge railroad that originated at Black Mountain and traveled over twenty-one miles of track to Mount Mitchell. The line included nine switchbacks, extremely sharp curves, and some grades that were over 5 ¼%.

In 1913, the company was sold to Perley & Crockett Company of Williamsburg, PA, who invested over one million dollars in developing their newly acquired mill and railroad. By 1914, the line reached Camp Alice, near the summit of Mount Mitchell.

Tourist trains ran from 1913 to 1918, when government pressure forced the end in favor of spruce lumber removal - which was needed by the massive airplane development during World War I.

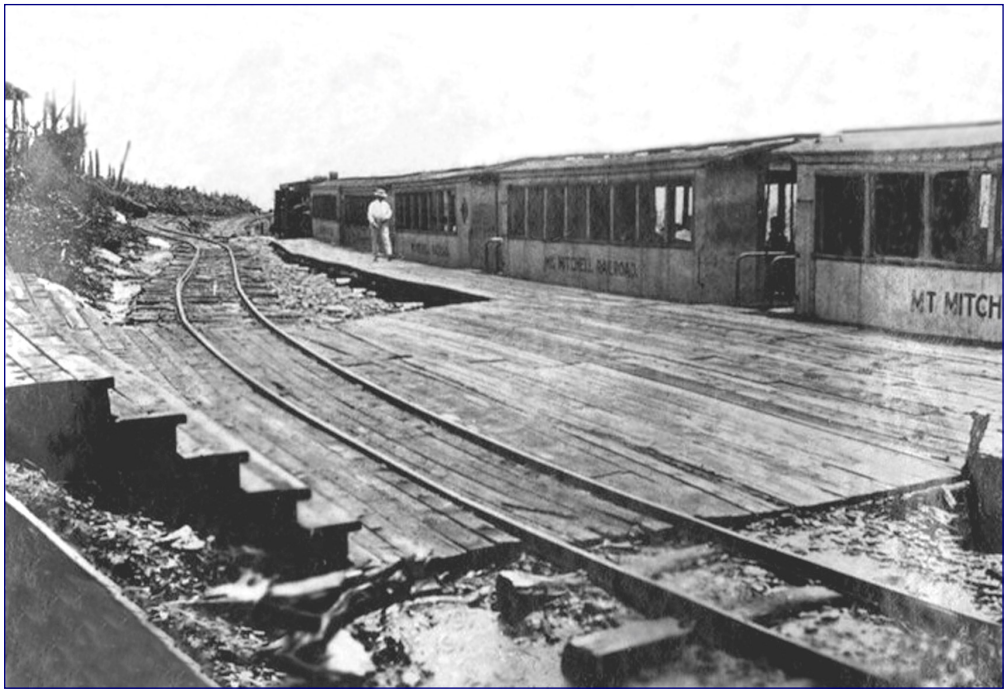
In 1920, the Perley & Crockett Lumber Company ceased logging in the area, and the Mount Mitchell Scenic Railroad was organized to resume tourist excursions to the summit of Mount Mitchell. In 1921, this was abandoned in favor of a toll road, and the tracks were removed for their scrap value.

Towns on Route: Black Mountain, Montreat, Bluemont (1907) > Ridgecrest (1912), Mount Mitchell

Continued on Page 8 - *Mt Mitchell*

The Mount Mitchell Railroad, although fully operational for only four years, was among the most popular and successful tourist attractions in North Carolina in the early twentieth century. Originally created as a logging enterprise by lumbermen Fred A. Perley and W. H. Crockett, the narrow-gauge line originated near Black Mountain in the Swannanoa Valley and over some 21 miles ascended more than 3,500 feet to Camp Alice, just below the summit of Mount Mitchell. The railroad had been established to transport spruce and other commercial timber, but by 1914 the owners had built passenger cars for use on their logging railroad. Perley and Crockett subsequently hired Col. Sandford H. Cohen, a leading booster of tourism in western North Carolina; under his aggressive promotion, the Mount Mitchell Railroad officially opened for general passenger traffic in July 1915.

Sharing the railbed with the logging trains, the Mount Mitchell Railroad expanded its service and in 1916 carried more than 10,000 passengers to Camp Alice, which had been constructed in 1914 or 1915 specifically for tourists. The camp included a large rustic dining hall and platform tents for overnight campers, and a moderate one-mile trail ascended to Mount Mitchell's summit, the highest elevation in the United States east of the Rocky Mountains. Despite the popularity of the enterprise, the passenger service was terminated in June 1919 so the railroad could be devoted exclusively to timber removal.



Passenger train at Camp Alice station near summit of Mt Mitchell.

By 1921 logging operations had ceased due to the depletion of timber resources. The tracks and ties were pulled up and the old railroad bed was used to create the Mount Mitchell Motor Road, which opened for automobiles in June 1922. Mt. Mitchell is the highest summit east of the Mississippi River and has long been a favorite tourist destination.

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