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EMD GP38-2



Photo Credit: Mike Hopkin

In 1966, General Motors' Electro-Motive Division (EMD) began production of a new diesel engine (the 645) and a new line of locomotives. EMD engine models are the cubic displacement of each cylinder in inches. The 645 was available in eight, twelve and sixteen cylinder non-turbocharged versions with 1000, 1500, and 2000 horsepower respectively and twelve, sixteen, and twenty cylinder turbocharged versions with 2300, 3000, and 3600 horsepower. The GP38 employed a non-turbocharged, 16-cylinder, 2000 horsepower 645 engine (the 16-645E) and, like predecessor GP-series locomotives, rode on a pair of two-axle trucks, giving a "B-B" wheel arrangement. In January 1972, EMD unveiled its "Dash-2" line, which heralded improvements in reliability and control systems. Previous model numbers were carried over, but with a "-2" suffix added to denote the improved model; the GP38 would become the GP38-2. In the original GP38, the diesel engine drove a generator to supply power to the traction motors, although an alternator was later offered as an option (the "GP38AC"). In the GP38-2, the 16-645E engine would drive an AR-10 alternator, with the AC electrical current from the alternator rectified to DC current to power four D77 traction motors on the trucks. Another major change was the "Dash-2" modular electrical cabinet, which sought to improve reliability and ease of maintenance. By the early 1970s, many of the locomotives from Baldwin, Fairbanks-Morse, and even Alco were considered obsolete and in need of replacement. Even the venerable EMD GP7s and GP9s were reaching the end of their service lives. The most common engine to replace them was the GP38-2.

The GP38-2 came with many variations. Southern Railway ordered theirs with high short hoods. Missouri Pacific, in particular, equipped theirs with "free flow" exhaust systems with four exhaust stacks instead of the standard two, as well as extra jacking pads adjacent to the stepwells. GP38-2s could be ordered with or without dynamic brakes, and while most had paper air filters, some came with oil-bath air filters. A variety of fuel tank sizes were offered and the new Blomberg-M truck was standard, although many were built with the older Blomberg-B truck. Several design changes also took place during construction. One of the major changes was a reduction of the length of the radiators, which also moved the fans closer together. During its production span, nose length was changed from 81 inches to 88 inches, the radiators changed from "chicken wire" to the corrugated style, and the later paper air filter boxes angled inward at the top, instead of being flat. To help comply with noise emissions standards, units built from 1980 onward were equipped with "Q-Fans" on their radiators. The last orders came with the straight side sill and the SD50-style "laundry chute" blower bulge. Another notable variation was the 51 GP38-2(W)s built in 1973 and 1974 for Canadian National. These featured the Canadian-style Safety Cab, "ladder" style stepwells, shortened blower housings, and various other options to suit CN's preferences.