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Orders Due: 4-15-11
ETA: December 2011

DDA40X



In 1963, under the leadership of David Neuhart, Superintendent of Motive Power, Union Pacific asked Alco, EMD, and GE for a single unit diesel locomotive with 5,000 or more horsepower. Neuhart had been responsible for the purchase of the 4,500 horsepower and 8,500 horsepower gas turbines. His staff had done a study and found that maintenance costs on a diesel locomotive were the same regardless of horsepower. In 1963, the only way to get 5,000 horsepower was by putting two diesel engine and generator sets onto one chassis. Given the wheel slip and traction motor technology at the time, eight traction motors and powered axles were needed to convert the horsepower into pulling power.

EMD's first response was to mate two 2,500 horsepower GP35 onto a single frame as a cables booster locomotive, the DD35. The DD35 rode on a pair of four-axle trucks and UP bought 27 of them. Next came fifteen DD35A locomotives with cabs. By 1969, the 567-model diesel engine had been replaced by the 645-model and UP went back to EMD for a new version of the DD35A. At the same time, EMD was developing some new features for their locomotive line and the result was the DDA40X. The first was delivered in April 1969, just weeks before the 100th anniversary of the completion of the Transcontinental Railroad on May 10, 1869. That earned them the name Centennials. Railroaders often called them "Big Jacks".

The model designation, DDA40X, comes from two "D" (four axle) trucks, "A" for a cab, "40" to indicate the use of the 16-cylinder 645E3 engine as in the GP40 and SD40, and X to indicate some experimental features. The first of the experimental features was an uprating of the 645E3 engine from 3,000 horsepower to the 645E3A engine with 3,300 horsepower. Another feature was the ability to perform a self-load test (checking that the alternator was producing power) without an external load test box to absorb the electrical power created. Next there was the usage of modular control circuits replacing considerable amounts of wiring. There was one other major difference between the Centennials and most regular freight units and that was the use of the 59:18 gear ratio that allowed 90 MPH operation instead of the standard 62:15 ratio that had a maximum of 75 miles per hour.