

Electric Locomotives

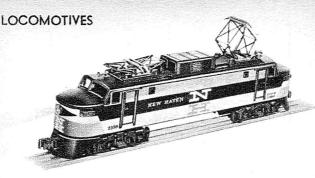
The first electric locomotives were used in this country about 1901. Installation was expensive, and the movement lagged until 1902, when the New York legislature prohibited steam engines from entering the heart of New York City.

Both the Pennsylvania and the roads now known as the New York Central and the New York, New Haven and Hartford had to electrify. Eventually all of these lines were electrified for long distances; the Pennsy's GG-1's now reach all the way to Harrisburg, Pennsylvania.

The original electrics were boxlike engines, and since they had little need for the touches that lend charm to a steam locomotive, they remained this way until the Pennsylvania Railroad designed the GG-1. It is an articulated 4-6-0+0-6-4, and can be used on passenger or freight work. It is rated at 4,620 hp. which compares very favorably with the 6,000 hp. rating given to a three-unit Diesel.

These locomotives operate equally well in either direction, the only necessary effort being to move the engineer and to raise one pantograph and lower the other. In operating, the rearmost pantograph is always used, the reason for this being that should the pantograph foul in the overhead wires, it will not carry away the other. Thus, one is saved as a spare in case of need.

A miniature GG-1 made by Lionel faithfully duplicates the original and includes working pantographs. With a simple rewiring these can be used to carry the operating current for anyone who wants to make a complete catenary suspension. Ready made catenary components are available in most hobby shops.

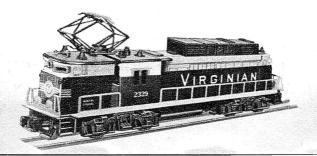


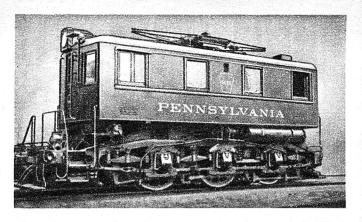
A recent advance in electric locomotion has been the development of rectifier locomotives which utilize banks of mercury vapor rectifier tubes to convert the easily transmitted and controlled alternating current to the needs of powerful and efficient direct current traction motors.

Two types of rectifier locomotives modeled by Lionel and illustrated on this page include GE's new Type EL-C built for The Virginian Railway for heavy duty hauling across the Appalachians and the unusual dual-duty New Haven locomotive which negotiates the heavily travelled New York-New Haven run switching from 660-volt D.C. third rail power supply in New York City to 11,000-volt A.C. overhead lines outside the city limits.

Other types of electric trains include the multiple unit (MU) cars, familiar to thousands of commuters. These cars are each powered by their own trucks, and gather their current from their own third-rail shoes or pantographs. However, they are all controlled by one engineer.

Electric locomotives will retain their importance for many years to come, both in the East and in the Rockies,





where long tunnels make steam engines impractical. Their function is very real, but is probably limited to the present usage.

The major advancement in the department of electrified locomotion has been the recent in design, both interior and exterior, of the rolling stock. You probably have noticed in preceding pages how much the electric engines are being patterned after the new Diesel types. The illustrations on this page also show the transition. At the top is an earlier type "Box Cab," 0-6-0 switcher, equipped with pantograph for overhead catenary operation. Bottom picture shows one of the latest in MU trains, just put into service, with longer, roomier, air-conditioned coaches.

