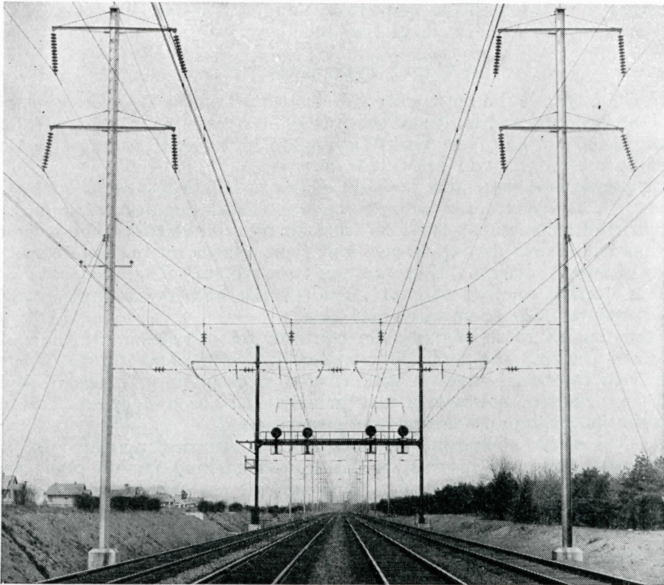


passenger train service between New York and Philadelphia, and which more recently have been operated south to Wilmington, Del., and west to Paoli, Pa. The entire cab, however, has been re-designed and streamlined to conform with the most recently developed principles of high-speed locomotive construction.

These engines are 62 feet, 8 inches in length, weigh 390,000 pounds each, and have three driving axles with two driving wheels at each end. They are equipped with three twin electric motors. They develop a starting tractive effort of 56,250 pounds and are rated at 3,750 continuous horse-power at 63 miles per hour. They are capable of a sustained speed of 90 miles per hour.

As soon as these locomotives are completed they will be assigned to the through electric passenger service, replacing those now in use which will be transferred to the electrified freight service.

Completion of the New York-Philadelphia-Baltimore-Washington electrification, including the freight service, will give the Pennsylvania Railroad System a total of 1974 miles of electrified track, or more than one-third of the total electrified standard railroad trackage in the United States.



Overhead wire system, showing catenary construction above standard four-track road-bed.

PENNSYLVANIA RAILROAD

• STREAMLINED •

ELECTRIC LOCOMOTIVES

FOR HIGH SPEED PASSENGER SERVICE BETWEEN
NEW YORK - PHILADELPHIA - BALTIMORE - WASHINGTON

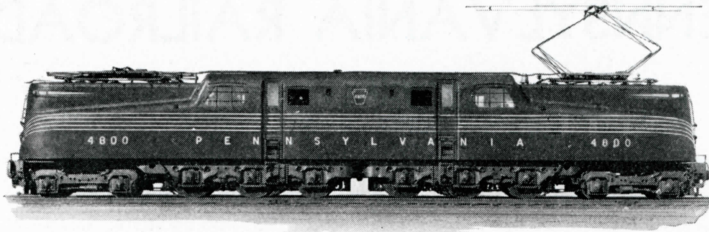


The Pennsylvania Railroad operates more than one-third of the total electrified standard railroad trackage in America.

Electrified lines of the Pennsylvania Railroad System with New Haven connection.

EXHIBITION OF NEW ELECTRIC ENGINES

• • • • **FEBRUARY 4 to 10, 1935** • • • •



New streamlined electric passenger locomotive, Type GG-1, especially designed for the New York-Philadelphia-Baltimore-Washington through service.

In test run, made new passenger train speed record

STREAMLINED ELECTRIC LOCOMOTIVES OF THE PENNSYLVANIA RAILROAD

PREPARATORY to the early inauguration of through electric passenger service on regular runs between New York, Philadelphia, Baltimore and Washington, the Pennsylvania Railroad is placing on public exhibition the two types of newly designed streamlined electric locomotives which will be used in through operation. The showings extend from February 4 to 10, inclusive, and in addition to the cities named cover Newark, Trenton and Wilmington.

Test Run Sets New Speed Mark

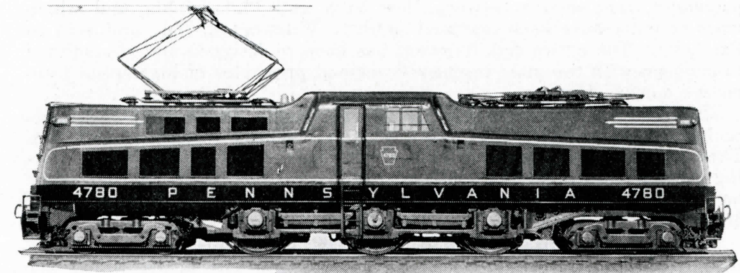
Electrification of the road-way passenger facilities was completed last month and the first inspection train was operated January 28 from Washington to Philadelphia and return, easily breaking all previous passenger train records between the two cities.

Southbound, the 134 mile run was made in 110 minutes, including a stop at Baltimore—an average speed of over 73 miles per hour. No effort was made to reach the limit of the engine's power or speed, but a portion of the run was made at 102 miles per hour without the slightest difficulty. The nine-car train consisted of standard size, full weight Pullman and railroad equipment, and the run was made with the temperature hovering near zero.

Two New Engine Types Designed

Two new types of streamlined electric engines have been designed for the through service known, respectively, as the GG-1 and P-5-a. Production is under way on 57 of the first named type, in addition to one already delivered, and on 28 of the second, a total of 86.

Either of these engines is capable of hauling passenger trains of standard length and weight at much greater speeds than those of even the fastest steam schedules attained in recent years. It is intended, however, to



New streamlined electric passenger engine, Type P-5-a, constructed to replace those now in use, which will later be transferred to the freight train service.

Capable of making 90 miles per hour sustained speed

initiate the electrified service on the present schedules and reach the proposed higher speeds step by step.

When this is accomplished the through service over the entire route will be based on three and one-half hours between New York and Washington, as compared with four hours and fifteen minutes made by the fastest train now operated, the Congressional Limited.

The GG-1 Type Locomotive

The GG-1 type is the most powerful electric passenger locomotive of this type ever designed and built and the first to be streamlined. It is intended for use in the through New York-Washington high-speed passenger service to handle the longest and heaviest trains.

This engine is seventy-nine feet, six inches in length and weighs 460,000 pounds. It is constructed with two main trucks, coupled, each having three driving axles with a two-axle truck at each outer end. The locomotive thus has twelve driving wheels and eight wheels on the outer trucks, a total of twenty wheels. There are six twin motors. The locomotive develops a starting tractive effort of 72,800 pounds and its continuous rated horse-power is 4,620 at 90 miles per hour.

In the first of these engines, the one now on exhibition, which made the record-breaking run from Philadelphia to Washington, the cab is constructed in the usual manner with riveted steel plates. In the 57 now under construction, however, a new principle has been adopted in order to derive the maximum benefits from streamlining.

The steel plates composing the cab will be electrically welded to the inside frame and to each other, in this manner making smooth joints and eliminating the overlapping of the plates and the use of rivets. The result will be to present a smooth surface to the air, which will preserve an even, unbroken flow of the air currents and insure the lowest air resistance when operating at high speeds.

The P-5-a Type Locomotive

In its working parts the new P-5-a electric engine generally resembles the locomotives which have been in use since January, 1933, in the through