ZA

THE Zephyr

THE NEW BURLINGTON STREAMLINED TRAIN

GENERAL ELECTRIC

MORE THAN 100 MILES AN HOUR

AMERICA'S largest user of electrically driven rail motor cars—the Burlington system—has added a new unit to its fleet—a light-weight, streamlined train capable of speeds up to 110 miles an hour. This train marks the culmination of more than two years of intensive study on the part of the Burlington's mechanical staff. General Electric equipment was specified.

Power is generated by an eight-in-line, two-cycle, airless-injection, 600-hp. Diesel engine, built by the Winton Engine Corporation. This is the first instance of the use of an engine of this type in this country in rail-car operation.

Direct-connected to the Diesel engine is a General Electric generator, which supplies power to the traction motors and to the two G-E compressors for air brakes. A 25-kw. G-E auxiliary constant-voltage generator, driven from an extension of the main-generator shaft, supplies current for battery charging, lighting, and air conditioning.

The front truck of the leading car carries two G-E direct-current traction motors, geared for service at maintained speeds of 110 miles an hour. The electric-pneumatic control provides series, parallel, and shunted-field motor operating positions.

The new three-car train is 196 feet long, and its weight, including the power plant, is about 95 tons, or just a little more than that of one standard steel Pullman sleeping car. The forward unit is occupied by the engine room, a large mail compartment, and a baggage compartment. The second unit contains the express, buffet, and smoking compartments. The front half of the rear unit is occupied by coach seats, and the other half is a lounge room, with luxurious seating accommodations equal to those in parlor cars of the highest class. A total of 72 passengers can be seated.

Passengers are provided with every possible comfort. The paired chairs are adjustable from a normal upright position to a semi-reclining angle, and are fitted with stuffed backs and seats, richly upholstered. The chairs in the circular glass-enclosed solarium at the rear are detached. Hand-baggage is stored under the seats or in a special compartment, instead of in overhead racks. This permits the use of indirect lighting from a tubular duct overhead. All passenger compartments of the train are equipped for radio reception. Air-conditioning equipment, supplied by General Electric, automatically controls the temperature of the passenger compartments by providing each compartment with an adequate supply of cleaned air, cooled or heated, as weather conditions may require.

Meals, prepared in the buffet, are served to the passengers on small removable tables that can be set up at each seat. Liquid refreshments are served at the buffet counter.

The train was built by the E. G. Budd Manufacturing Company. Practically all of the structural material is cold-rolled stainless steel, and the wheels are of solid steel alloy. The cars are articulated, with one truck between each two cars; hence, there are four trucks to the train instead of six, as on an ordinary three-car train. This reduces weight and eliminates the "slack" between cars, which is sometimes responsible for the unpleasant jerk of an ordinary train. The train has roller bearings throughout, and rubber-cushioning is used at many points on each truck.

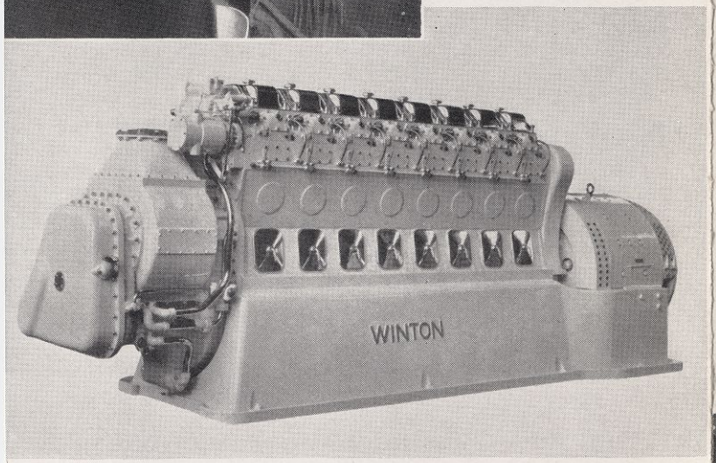
The cars have no underframes; each body is built of a framework, or skeleton, of horizontal and vertical U-shaped struts which carry the weight of the car. All parts are joined by electric welding. The noncorrosive qualities of the stainless steel make painting unnecessary. The insulation between the exterior and the interior sheathing is aluminum foil, slightly crumpled, and so thin that only 100 pounds of the material is required to insulate the entire train.

Streamlining is accomplished through the contour of the front and rear ends, the design of wheel guards, the complete sheathing of the under surfaces, and the flush window frames which carry the sealed, shatter-proof windows.

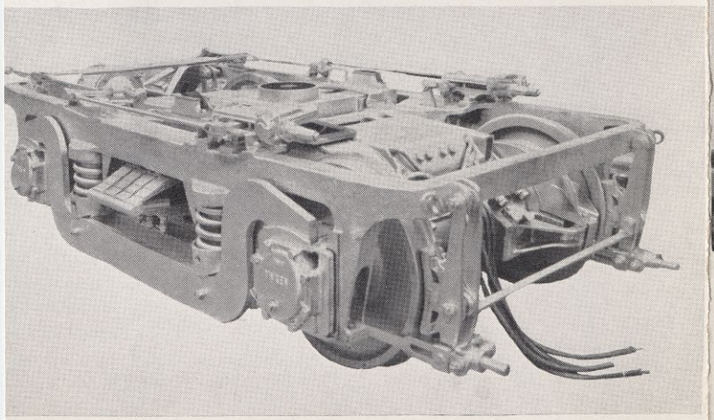
Because of the high efficiency of the Diesel engine, the light weight of the train, and the streamlined construction, this train will cost less than half as much to operate as does a conventional steam unit of equal capacity. Because of its greater comfort and speed, its safety, and its reliability, the train should renew public interest in travel by rail. General Electric is glad that the performance of its equipment on other Burlington trains has justified the selection of G-E equipment for this new and revolutionary type of rail motor car.

GENERAL ELECTRIC

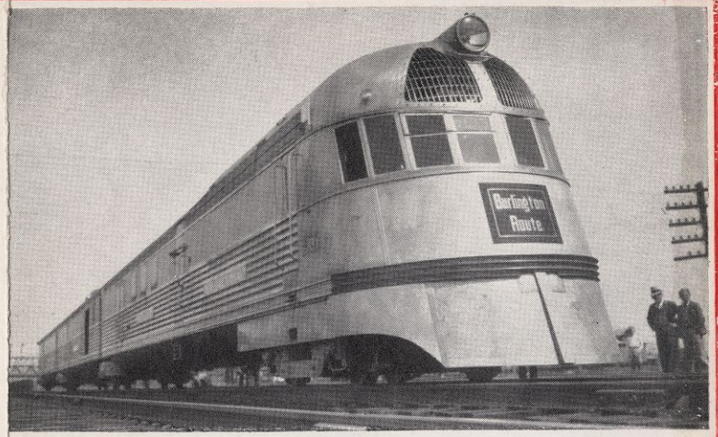
Operator's position, showing controls, instruments and view from front windows



The power plant, with the 600-hp. Diesel engine and the G-E generator

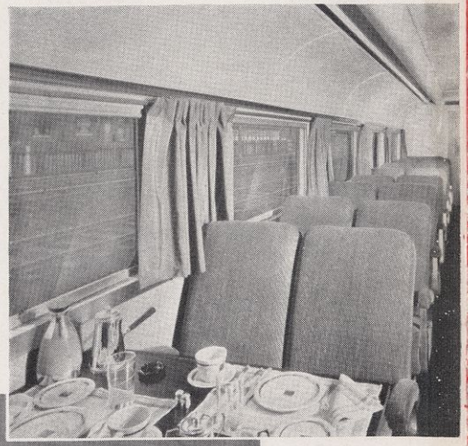


The power truck of the new train, showing the two G-E traction motors



The Burlington "Zephyr," shortly after it had made 104 miles an hour on a trial run

The main section of the rear car, with a removable table set for a meal



The solarium, at the rear of the train

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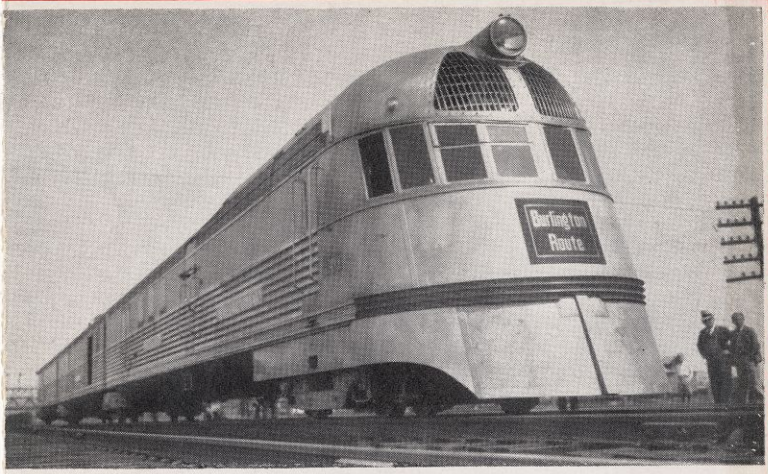

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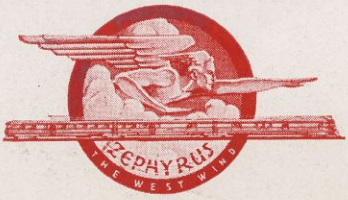

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