

# THE NEW KING OF THE RAILS





The locomotive consists of two of these units. Each is rated 2500 hp and can operate independently. The door in the "nose" opens into a passage to the operator's cab. One of the two headlights throws a beam straight upward as a warning signal when running in deep canyons through mountainous districts.

## AMERICA'S FIRST

Another great advance in the forward march of American railroading! Steam and electricity work together to drive a railroad locomotive—steam, traditionally the source of locomotive power, and electricity, the smoothest and quietest means of transmitting that power.

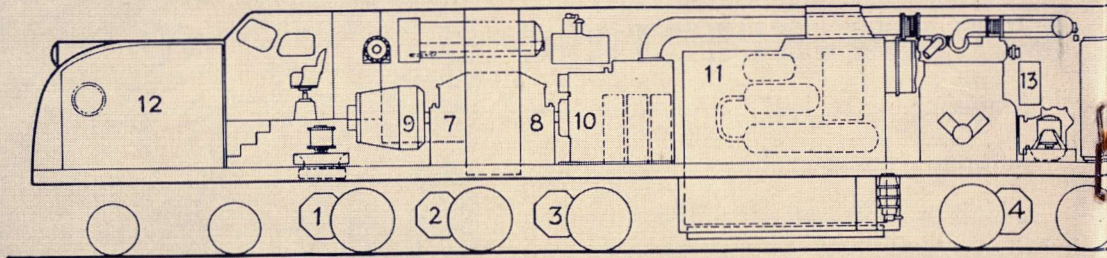
Built in the General Electric shops at Erie, Pa., this locomotive represents the co-operative efforts of General Electric and Union Pacific research engineers

# STEAM-ELECTRIC

in doing what had never been done before anywhere in the world—installing a high-pressure, condensing turbine-electric power plant in a railroad locomotive. They had a big job. They succeeded, as is proved by the locomotive's exceptional performance on test runs. It will do twice the work of the conventional steam locomotive for each pound of fuel. It will go three times as far without stopping for fuel or water.



Engineers like to run this locomotive. The one shown here is at the electric controls, which include accelerating, reversing, and braking. The power plant is completely automatic. The phone at his left is for talking with other members of the train crew.



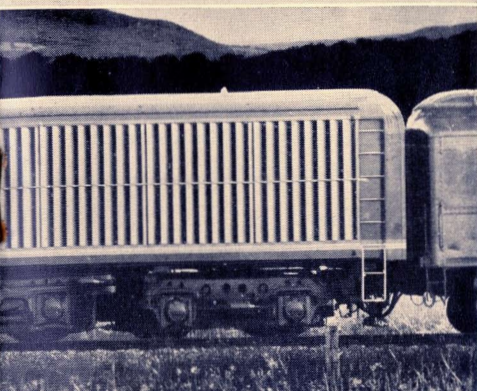
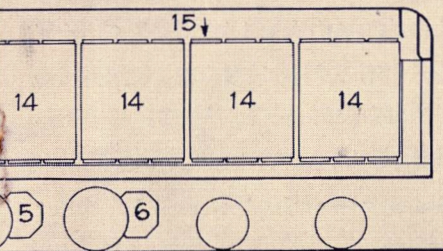
### MAIN PARTS

1-6 Traction motors  
 7-8 Main generators  
 9 Alternator

10 Turbines  
 11 Boiler  
 12 Water tanks

13 Steam control panel  
 14 Condensers  
 15 Fuel tanks





The locomotive is in two units, one of which is shown at the left. In each unit a steam turbine drives an electric generator which supplies current to the six electric motors on the axles. The information below applies to each unit.

Top speed—125 mph

Power—2500 hp

Weight—265 tons

Length—90 ft, 10 in.

Height—15 ft

Width—10 ft

Fuel used—low-grade oil ("Bunker C")

Fuel capacity—3000 gal

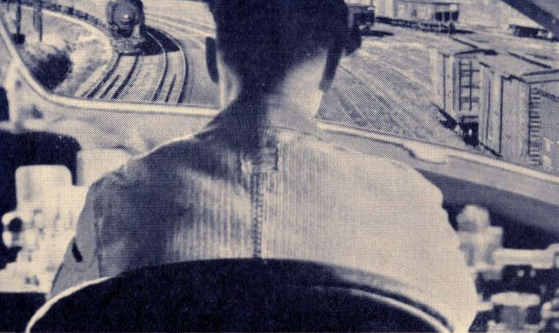
Water capacity—4000 gal

Steam conditions—1500 lb per sq in. at 920 F

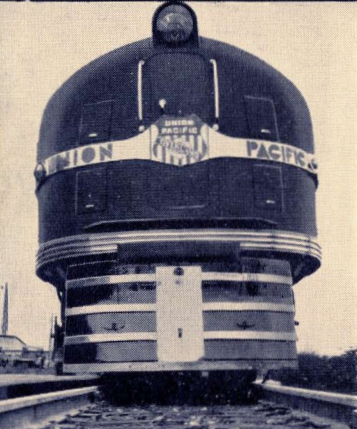
Traction generators and motors—direct-current

Auxiliary power—220 volts, alternating current

Mileage between water or fuel stops—500 to 700 miles



The engineer has a clear view of the track ahead



Streamlined to reduce wind resistance at high speeds

## **THIS LOCOMOTIVE IS THE ONLY ONE OF ITS KIND IN THE WORLD —A CONDENSING, HIGH-PRESSURE STEAM-ELECTRIC**

**Here Are Some of Its Unusual Features**

### *Water Is Used Over and Over*

Steam used by the turbine is condensed and returned to the boiler. This arrangement decreases the amount of water carried and lengthens the distance between stops for water. The use of distilled water prevents boiler scale and corrosion.

### *Electric Braking*

When the train is coasting, the engineer needs only to move a handle and

the motors become generators. This checks the train's speed smoothly and easily, makes for safer travel, and reduces wear on brake shoes and wheels.

### *Train Lighting and Air Conditioning*

The locomotive's power plant generates all the power necessary for operating all the electric auxiliaries on a 12-car train.

### *Specially Designed Boiler*

It is of the water-tube, forced-circulation type and includes furnace, superheater, economizer, air preheater, and burners.

### *Smooth Power*

The electric motors exert an even pull

at all times. There is no jerking, and the absence of unbalanced parts reduces wear on the locomotive and track.

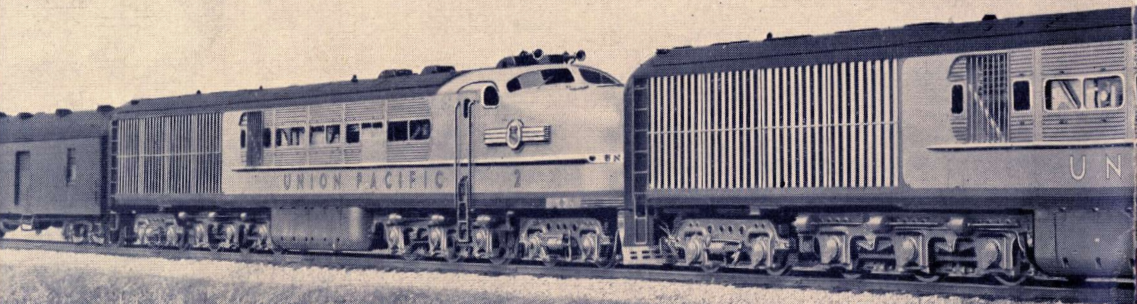
### *Completely Automatic Boiler Operation*

If the engineer wants more power, he has only to open the throttle to increase the flow of fuel to the boilers. It takes but a few minutes to raise the steam from zero to full pressure. This avoids delays in putting the locomotive into service.

### *Noiseless and Smokeless*

The locomotive glides along with only a low humming of the motors. The nuisance of escaping steam and smoke is largely eliminated.

**This steam-electric locomotive was built in the Erie Works of General Electric. The boiler was supplied by the Babcock & Wilcox Company, and the boiler control devices by the Bailey Meter Company**



**GENERAL  ELECTRIC**