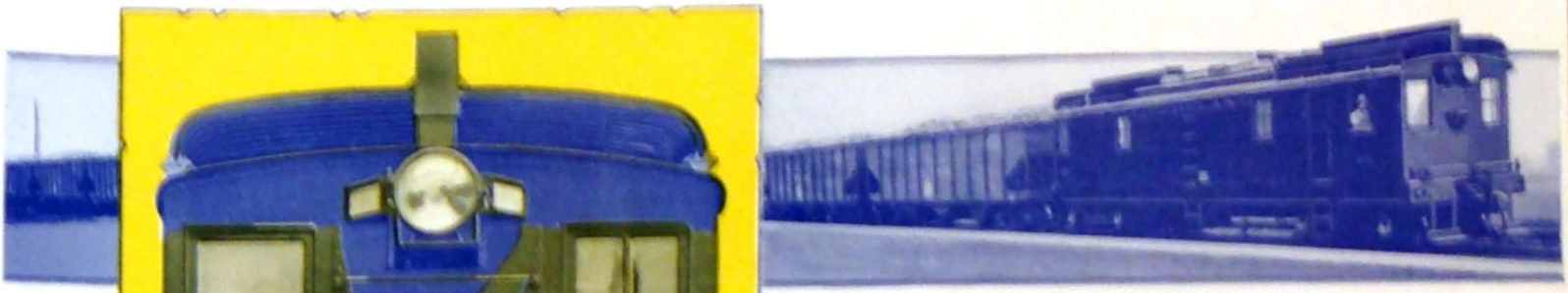
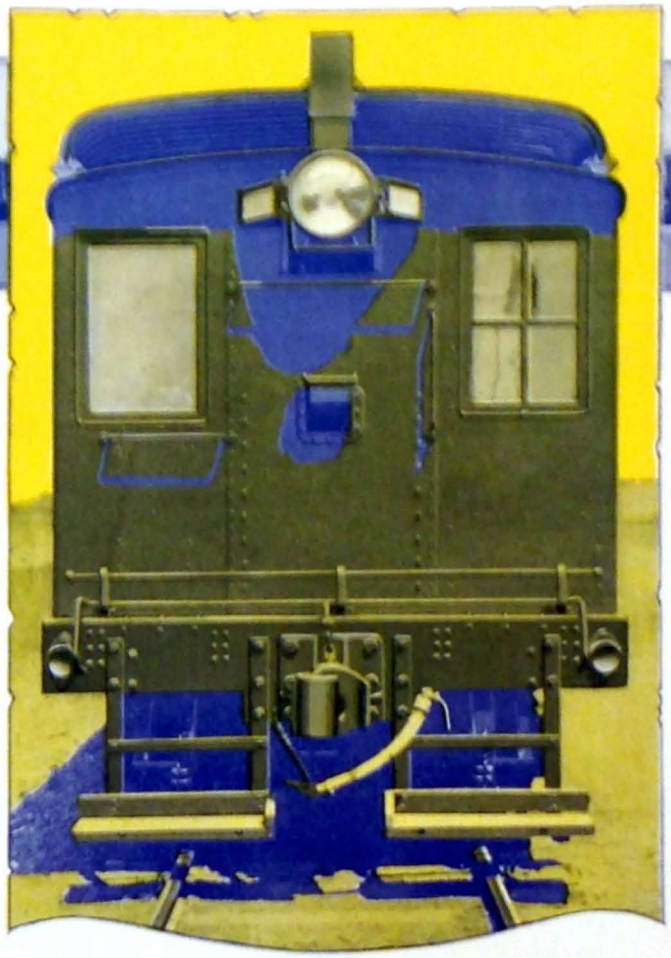
The Oil-Electric Locomotive





THE Long Island 100-ton Oil-Electric Locomotive was placed in regular switching service on February 15th, 1926. In this service it has been operating twenty-four (24) hours per day continuously for six days a week, returning to the engine terminal only on the seventh day for inspection.

From February 15th, to May 2nd, 1926, this locomotive has given 1078.4 hours of service. The following table has been prepared to show the amount and cost of fuel oil, etc., required for this period of service

Hours of locomotive service	1078.4
Kilowatt-hours generated	57661
Fuel oil, gallons	7691
Lubricating oil, gallons	66
Gasoline, gallons	1.5
Water, cubic feet	225

COST OF OPERATION

Fuel oil @ $0.05 per gallon	$384.55
Lubricating oil @ $0.50 per gallon	33.00
Gasoline @ $0.16 per gallon	.24
Water @ $0.08 per 100 cubic feet	.18
Total power costs	$417.97
Cost per hour of locomotive service	$ 0.387
Cost per kilowatt-hour generated	$ 0.00724

Built Jointly by

GENERAL ELECTRIC COMPANY
Schenectady, New York

AMERICAN LOCOMOTIVE COMPANY
30 Church St., New York, N. Y.

INGERSOLL-RAND COMPANY
11 Broadway, New York, N. Y.

The Oil-Electric Locomotive

Main Line Run by Oil-Electric Locomotive

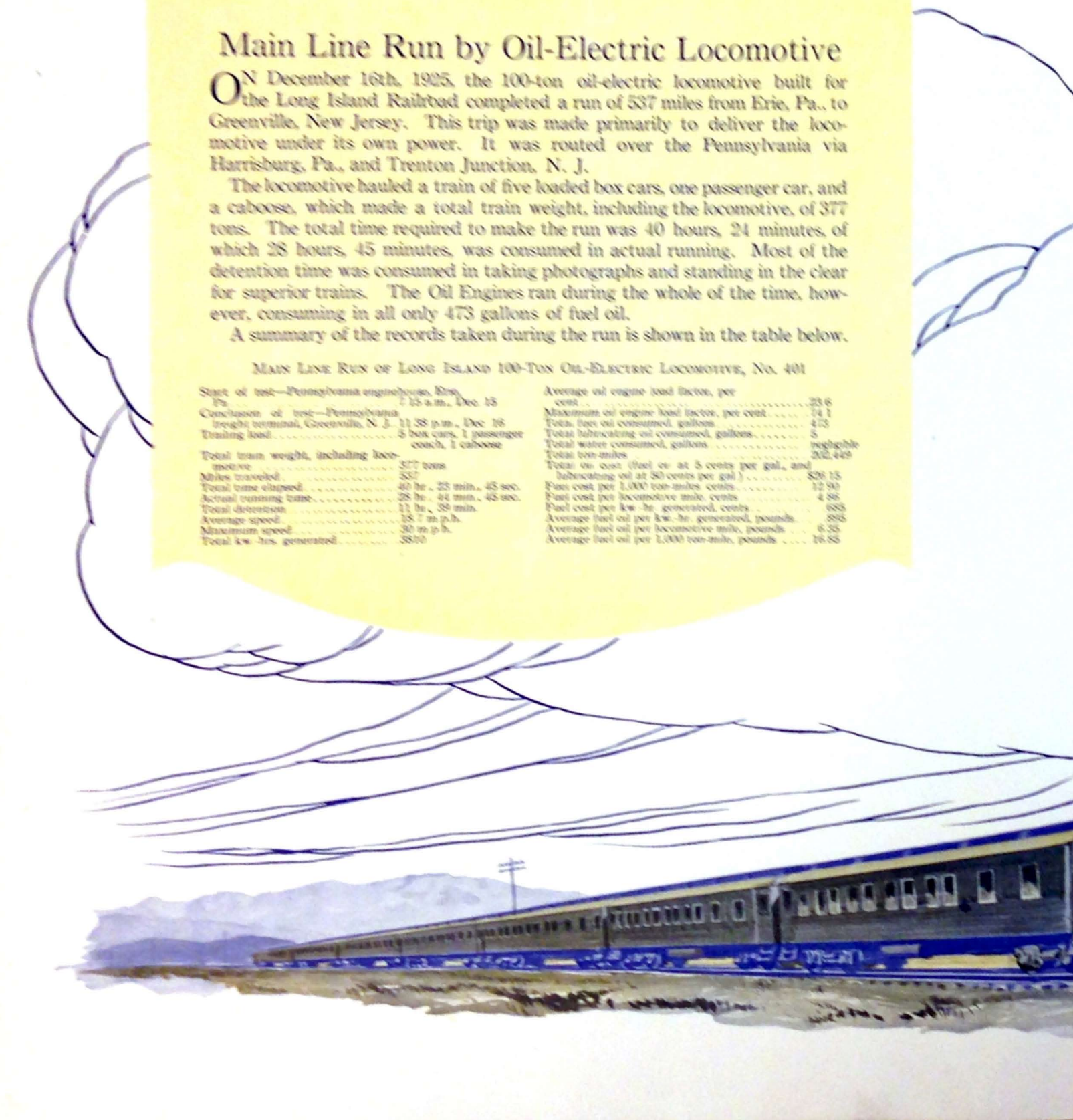
ON December 16th, 1925, the 100-ton oil-electric locomotive built for the Long Island Railroad completed a run of 537 miles from Erie, Pa., to Greenville, New Jersey. This trip was made primarily to deliver the locomotive under its own power. It was routed over the Pennsylvania via Harrisburg, Pa., and Trenton Junction, N. J.

The locomotive hauled a train of five loaded box cars, one passenger car, and a caboose, which made a total train weight, including the locomotive, of 377 tons. The total time required to make the run was 40 hours, 24 minutes, of which 28 hours, 45 minutes, was consumed in actual running. Most of the detention time was consumed in taking photographs and standing in the clear for superior trains. The Oil Engines ran during the whole of the time, however, consuming in all only 473 gallons of fuel oil.

A summary of the records taken during the run is shown in the table below.

MAIN LINE RUN OF LONG ISLAND 100-TON OIL-ELECTRIC LOCOMOTIVE, NO. 401

Start of test—Pennsylvania engine house, Erie, Pa.	7:15 a.m., Dec. 15
Conclusion of test—Pennsylvania freight terminal, Greenville, N. J.	11:38 p.m., Dec. 16
Trailing load	5 box cars, 1 passenger coach, 1 caboose
Total train weight, including locomotive	377 tons
Miles traveled	537
Total time elapsed	40 hr., 23 min., 45 sec.
Actual running time	28 hr., 44 min., 45 sec.
Total detention	11 hr., 39 min.
Average speed	18.7 m.p.h.
Maximum speed	30 m.p.h.
Total kw.-hrs. generated	3810
Average oil engine load factor, per cent	23.6
Maximum oil engine load factor, per cent	74.1
Total fuel oil consumed, gallons	473
Total lubricating oil consumed, gallons	5
Total water consumed, gallons	negligible
Total ton-miles	202,449
Total oil cost (fuel oil at 5 cents per gal., and lubricating oil at 50 cents per gal.)	$26.15
Fuel cost per 1,000 ton-miles, cents	12.90
Fuel cost per locomotive mile, cents	4.86
Fuel cost per kw.-hr. generated, cents	6.55
Average fuel oil per kw.-hr. generated, pounds	.895
Average fuel oil per locomotive mile, pounds	6.35
Average fuel oil per 1,000 ton-mile, pounds	16.85



The Oil-Electric Locomotive

The 100-Ton Oil-Electric Locomotive

THE 100-ton oil-electric locomotive meets a definite need for a self-contained unit which can be operated for long continuous periods, at low cost, in branch line, terminal, and switching operations.

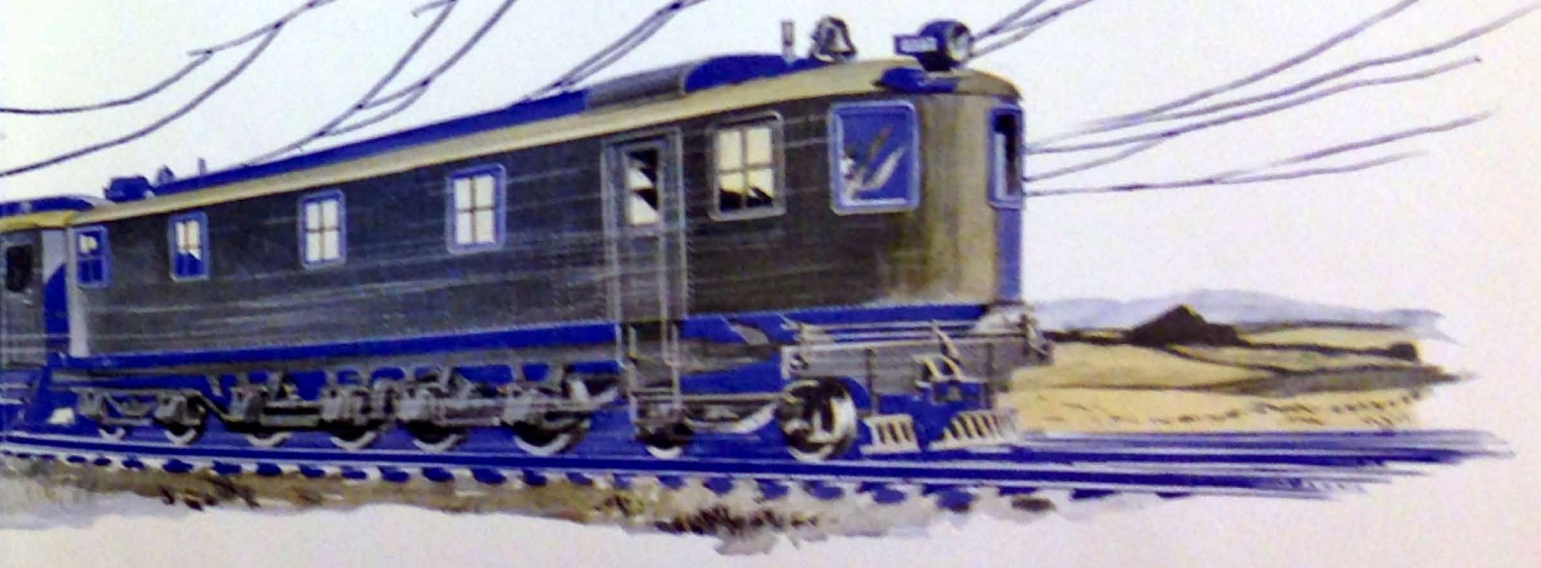
It consists of a three-compartment cab mounted on two swivel trucks. Since an operator's compartment is provided at each end, the locomotive can be operated from either end without being turned.

In the central or engine compartment, two oil engine generator sets are placed side by side. This compartment also contains the auxiliary apparatus, the whole being arranged to proportion the weight equally on all axles.

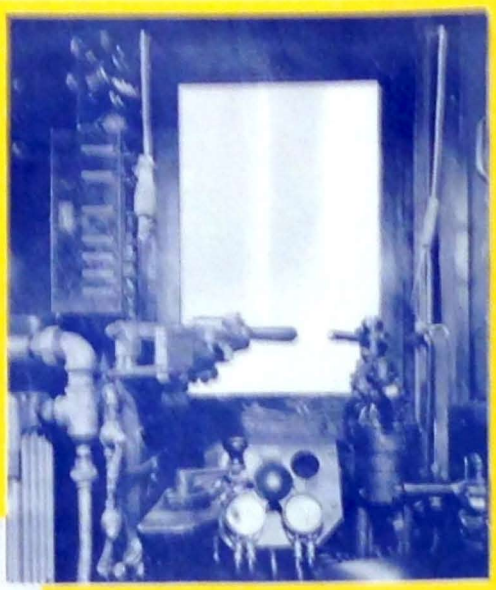
The electrical design of this self-contained unit makes the control very simple. There are but two control handles. A throttle lever controls the output of either or both engines, and a master controller connects the motors in series or parallel for either forward or backward motion. The elimination of all rheostats from the power circuit has reduced power losses to a minimum.

Two or more of these locomotives can be articulated and operated as one unit from one control station, only one crew being needed.

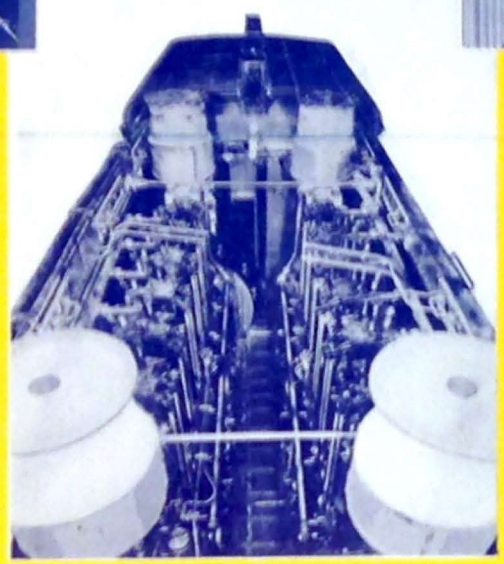
On the following page are listed the specifications for the 100-ton oil-electric locomotive.



The two 300 h.p. Oil Engine Generator sets in the 100 Ton Oil-Electric Locomotive



Portion of the operator's compartment showing throttle and control apparatus



An aeroplane view of the engine compartment of the 100 Ton Locomotive

100-Ton Oil-Electric Locomotive Specifications

OIL ENGINES, NUMBER 2
- Type, Direct Injection ..... Ingersoll-Rand
- Revolutions 220-600
- Cylinders per engine 6
- Cylinder dimensions ..... 10" bore x 12" stroke
- Horsepower per engine 300

ELECTRICAL EQUIPMENT ..... General Electric
- Motors, Number 4
  - Type GE-69-C
  - Horsepower rating 200
  - Voltage ..... 600 D.C.
- Driving wheels, diameter ..... 38"
- Wheel base, truck or rigid ..... 7' 2"
- Total ..... 36' 2"

DIMENSIONS
- Length inside knuckles ..... 48' 2"
- Length over cab ..... 43' 0"
- Height over radiator ..... 13' 11"
- Width over-all ..... 10' 0"
- Weight, total ..... 200,000 lbs.
- Weight on drivers ..... 200,000 lbs.
- Tractive effort ..... 60,000 lbs.
- Capacity of fuel tank ..... 400 Gals.

General Electric
American Locomotive
Ingersoll-Rand

FORM 1418 R