

THE BALTIMORE AND OHIO RAILROAD COMPANY
Motive Power DEPARTMENT.

DIESEL-ELECTRIC LOCOMOTIVE
INSTRUCTION CAR NUMBER X-1

Office General Superintendent Motive Power and Equipment
Baltimore, Maryland, August 6, 1942

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As the number of Diesel electric locomotives in passenger and switching service on the Baltimore and Ohio increased, and their use in freight service was contemplated, it became evident that some means of educating the engine crews, shop mechanics and supervision would have to be provided.

Therefore, on February 28, 1942, permission was requested for outfitting a Diesel instruction car, and also for the appointment of an instructor.

On March 12, 1942 authority was received from the management to equip a car and for the appointment of an instructor for the purpose of instructing employees, who operate or maintain Diesel locomotives or supervise the operation or maintenance of same.

Plans were prepared and the necessary material was obtained for the preparation and installation of the necessary models and appurtenances at Mount Clare Shop as follows:

- A. Cut-away model of Electro-Motive model 201-A engine showing engine frame, crank shaft, main bearings, connecting rods, cylinder liners, pistons and cylinder heads with valves, injectors, control and over-speed governors with all operating linkage and electro pneumatic throttle which operates from the controller.
- B. Cut-away model of Electro-Motive model 567 engine showing

engine frame, crank shaft, main bearings, connecting rods, cylinder liners, pistons and cylinder heads with valves, injectors, with operating linkage.

These two engine models are full size with actual engine parts sectioned so that working parts of the engine are visible in such a manner that the applications of same can be explained and the flow of lubricating oil, fuel oil and cooling water can be followed.

- C. Complete high and low voltage panel equipped with Westinghouse equipment similar to that on the DP-2 class passenger locomotives.

This panel is equipped with main contactors, control contactors and relays, voltage regulator, resistors and switches.

- D. Complete high and low voltage panel equipped with Electromotive equipment similar to that on the DP-3 class passenger locomotives.

This panel is equipped with main contactors, control contactors and relays, voltage regulator, resistors and switches.

- E. High voltage panel with main contactors and other appurtenances required in addition to that on the DP-3 (D) panel to demonstrate the electrical control and dynamic brake on the freight locomotives.

- F. Electrical appurtenances required in addition to that on the DP-3 (D) panel to demonstrate the electrical control on class DS-3 and DS-4 switching locomotives.
- G. A controller which contains the throttle lever, reversing lever, transition control and electric dynamic brake control.

All of the electric panels (C, D, E & F) are operated from the controller by means of battery current and air pressure, the same as in actual operation. High voltage operation is effected by means of relays and switches.

- H. A Vapor Car Heating Company type CFK-4225-2 steam generator similar to those on the DP-3 class passenger locomotives in operating condition with cut-away models of the various parts located adjacent to the actual working part.
- I. Engine control panel with all indicating gauges and lights which show the engine lubricating oil pressures, fuel oil pressures, transition indicator and warning lights for lubricating oil pressure, engine temperature, boiler operation, wheel slippage and dynamic brake overload.
- J. Two cabinets 10 feet long on which are demonstrated various small parts and models and maintenance tools with which the car is supplied.

K. Seating for a class of twenty (20) with blackboards and charts; a lantern slide projector with equipment for taking pictures of various parts which can then be projected on a screen and used for instruction purposes and a 16 MM moving picture projector which will be used for displaying films which are now being furnished by several manufacturers of this type of equipment.

Car was completed and the first class was conducted at Mount Clare on June 23, 1942.

The instructions are divided into eight lectures, each of which requires approximately two hours for the lecture and demonstration, after which all questions are discussed.

These eight lectures are as follows:

1. Fundamental principals of the Diesel engine.
2. Maintenance and operation of the class DP-2, DP-3, DS-3, DS-4 and DF-1 Diesel locomotives.
3. Maintenance and operation of the Electro-Motive type 201-A Diesel engine.
4. Maintenance and operation of the Westinghouse electrical equipment on class DP-2 Diesel locomotives.
5. (a) Maintenance and operation of the Electro-Motive electrical equipment on the class DP-3, DS-3 and DS-4 Diesel

locomotives.

(b) Maintenance and operation of the Electro-Motive electrical equipment on the class DF-1 Diesel freight locomotives, including the electric dynamic brake.

6. Operation and maintenance of the steam generator used for furnishing steam to heat the train.
7. Lectures and demonstration of maintenance tools used in repairing and reconditioning cylinder heads, cylinder liners, pistons, connecting rods, pumps, air compressors, electrical appurtenances, etc.
8. Lecture with charts and slides of the locomotive as a whole, demonstrating the relation of the different appurtenances to each other and showing of moving pictures.



EXTERIOR VIEW OF CAR



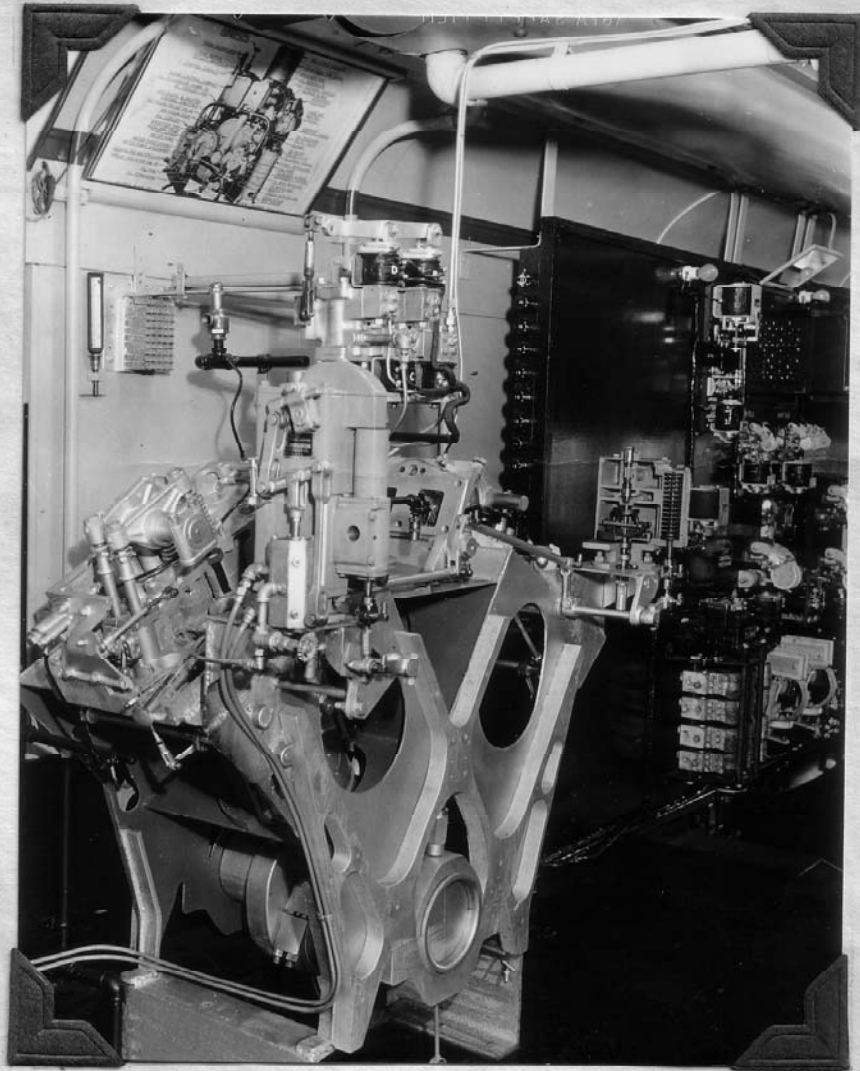
GENERAL VIEW OF THE INTERIOR OF THE CAR FROM THE ENTRANCE SHOWING THE STEAM GENERATOR, ENGINE MODELS, ELECTRICAL CONTROL PANELS, MODEL CABINETS, ETC.



GENERAL VIEW OF THE INTERIOR OF THE CAR LOOKING TOWARD THE ENTRANCE WITH A CLASS, INSTRUCTOR F. B. RYKOSKEY LEFT FOREGROUND AND SUPERVISOR OF DIESEL ELECTRIC LOCOMOTIVE OPERATION, G. F. WILES RIGHT FOREGROUND.



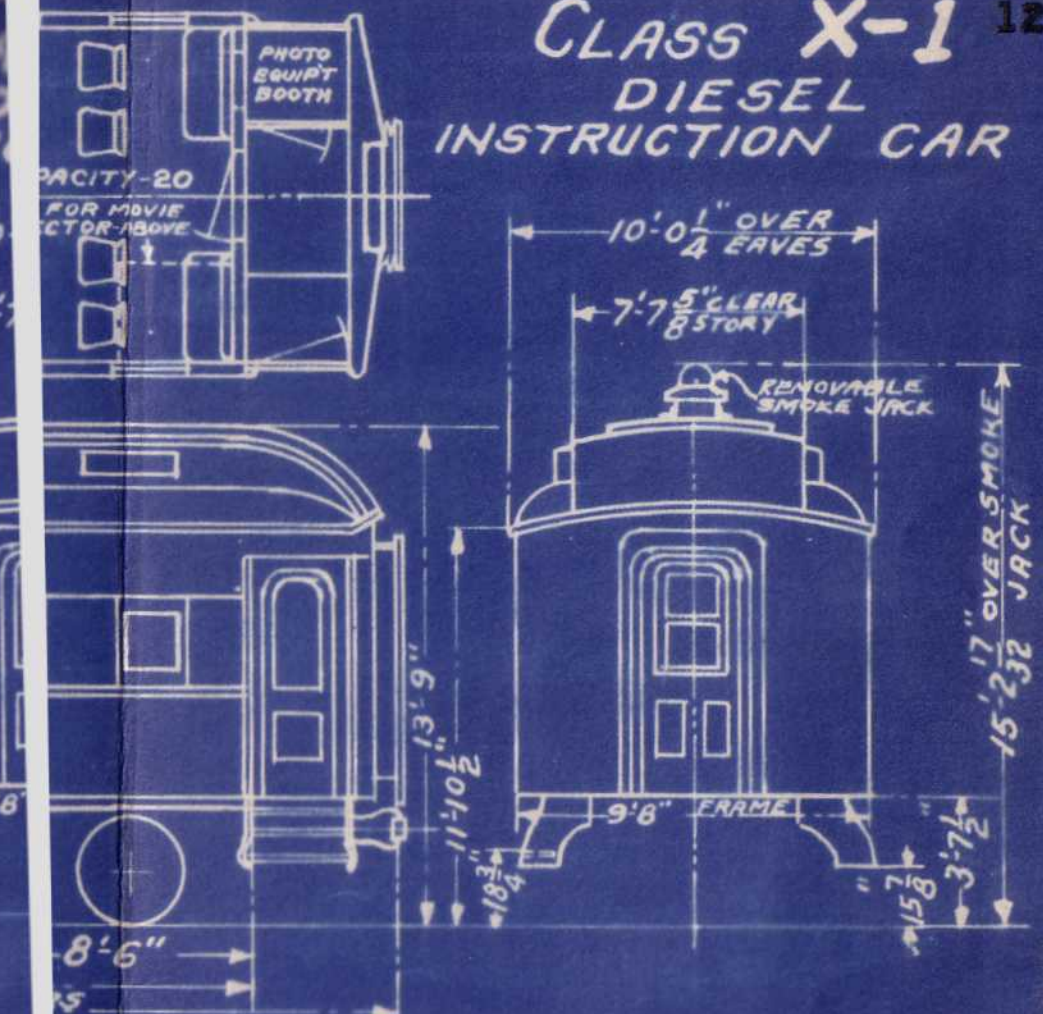
VIEW SHOWING CUT AWAY MODEL OF A 567 TYPE
DIESEL ENGINE, ENGINEER'S CONTROLS AND CLASS
DP-2 ELECTRICAL CONTROL PANEL



VIEW SHOWING CUT AWAY MODEL OF A 201-A TYPE
DIESEL ENGINE WITH CLASS DP-3 ELECTRICAL
CONTROL PANEL IN BACKGROUND



INSTRUCTOR F. B. RYKOSKEY EXPLAINING THE OPERATION OF
A TYPE 567 DIESEL ENGINE TO A CLASS



LIGHT WEIGHT, STEAM GENERATOR END — 74000
 — " — " — , PASS. END — 66600
 — " — " — , TOTAL — 140600
 BUILT BY — A. C. & F. DY Co. — 1910
 CONVERTED AT MT. CLARE — 1940
 HEATING, VAPOR — GOLD CAR HEATING Co.