BRITISH COLUMBIA ELECTRIC RAILWAY

ELECTRIC RAILWAYS.

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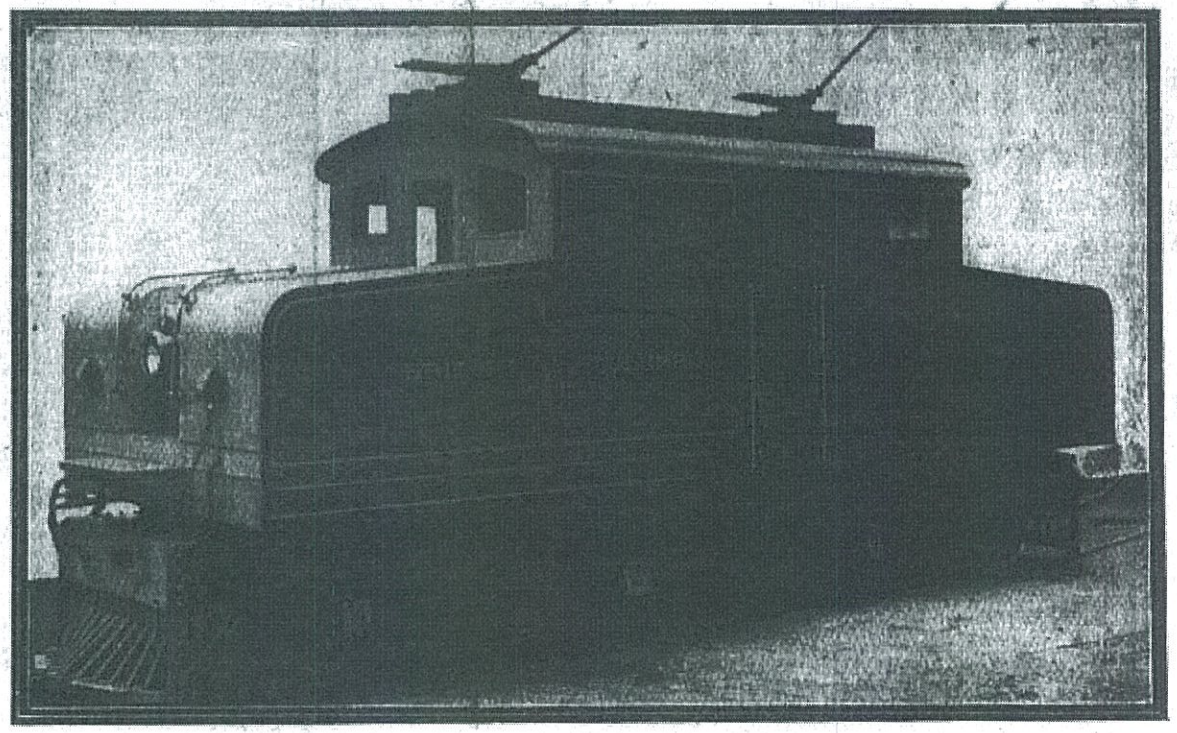
B. C. Electric Railway Locomotives.

The illustrations given herewith show one of three electric locomotives which have been built for the British Columbia Electric Ry. for its interurban line now under construction between New Westminster and Chilliwack, a distance of over 60 miles. The locomotives are of the articulated truck, four-axle type, with one motor mounted upon each axle. The maximum rated tractive effort is 16,000 lbs. drawbar pull, and the maximum instantaneous effort is 25,000 lbs.

A feature of special interest is that the body of the locomotive rests upon two four-wheeled trucks, coupled together by a massive hinge having lateral flexibility but vertical rigidity, thereby enabling the rear trucks to resist any tendency to tilt under the action of the forward truck, and vice-versa. The centre pins and cab platform framing are not subjected to any longitudinal stress, except that due to its own inertia when starting and stopping, the whole pull of the motors being transmitted direct from the motor through the trucks. Suitable



ELECTRIC LOCOMOTIVE FOR B.C. ELECTRIC RY. CO.'S FRASER VALLEY BRANCH.

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Fig. 1 shows the general appearance of the locomotives, and fig. 2 gives a view of the interior of the cab. Here can be seen the two master controllers, one at each end of the cab, the contactor boxes, circuit breakers, switches, etc. The control equipment is of the standard multiple unit type, with series magnets operating the various contactors. The resistances are placed in the sloping ends of the superstructure.

The motor equipment consists of 4 D.K. 12 A motors. When operating on a 600 volt circuit, each motor will give a ing. Each motor is fitted with reduction gear having a ratio of 3.64 to 1. The armature bearings of the motor are lubricated by oil rings which are specially designed to prevent flooding when running at high speeds. The axle bearings are lubricated by a system of wicks which are immersed in oil wells. No grease is used as an emergency lubricator. The whole of the gearing of the motors is contained in a malleable iron oil tight gear box, which is provided with suitable stiffening ribs. It is supported by the axle bearing at one end, and by the pinion bearing and motor shell at the other end.

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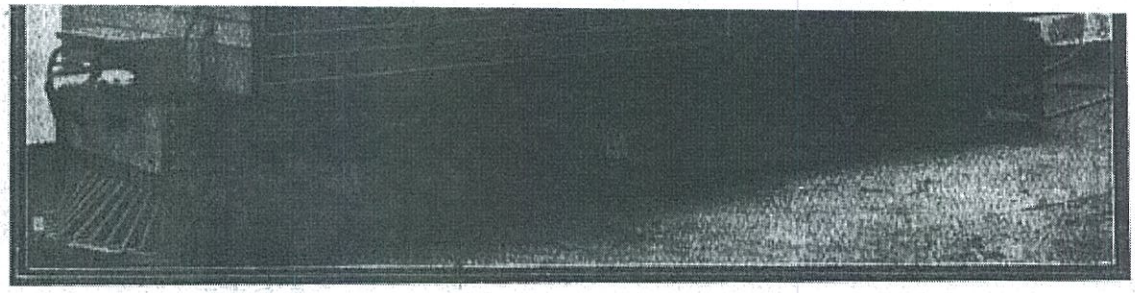

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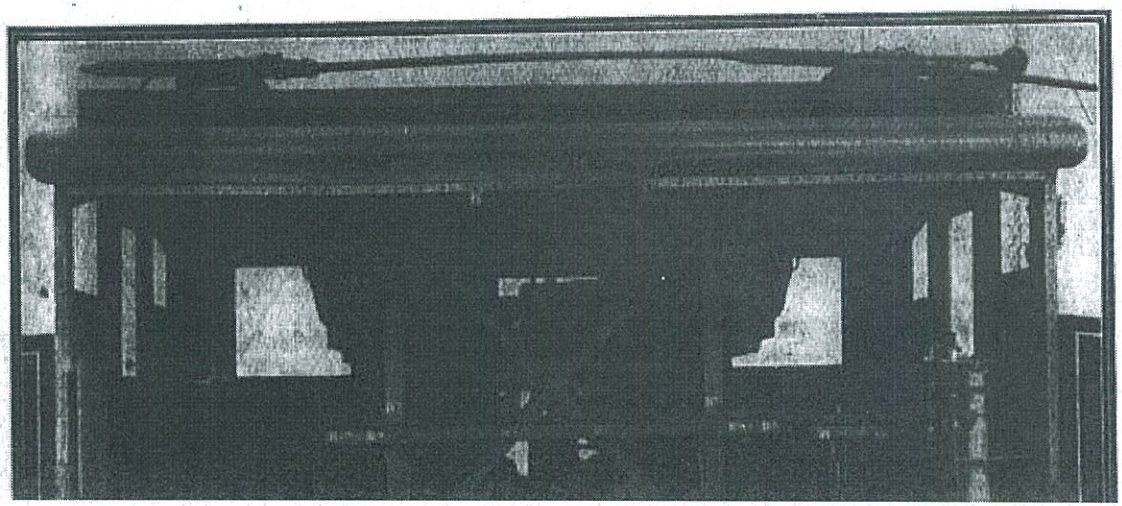
The motor equipment consists of 4 D.K. 12 A motors. When operating on a 600 volt circuit, each motor will give a tractive effort of 4,040 lbs. on the periphery of the 42-inch wheels and a speed of 15 m.p.h. at the one hour rating. Each motor is fitted with reduction gear having a ratio of 3.64 to 1. The armature bearings of the motor are lubricated by oil rings which are specially designed to prevent flooding when running at high speeds. The axle bearings are lubricated by a system of wicks which are immersed in oil wells. No grease is used as an emergency lubricator. The whole of the gearing of the motors is contained in a malleable iron oil tight gear box, which is provided with suitable stiffening ribs. It is supported by the axle bearing at one end, and by the pinion bearing and motor shell at the other end.

The motors are designed and arranged for forced ventilation, the air being blown into the motor shell at the end farther from the commutator, and passing out at suitable openings provided at the commutator end.

The air for the forced ventilation is obtained by means of a centrifugal blower situated in the centre of the cab and driven by a motor. The controller for operating this motor is situated near the right hand master controller seen in fig. 2. In addition to the blower for the motors, there is an electrically driven air compressor with suitable air reservoirs for the air brake equipment, the locomotive being fitted with combined straight and automatic air brake. The compressor for the brake equipment is mounted above the motor driven blower in the cab. Two current collectors are provided, these being of the straight under running trolley type, the current being collected from an overhead trolley line. The trolleys are equipped with re-



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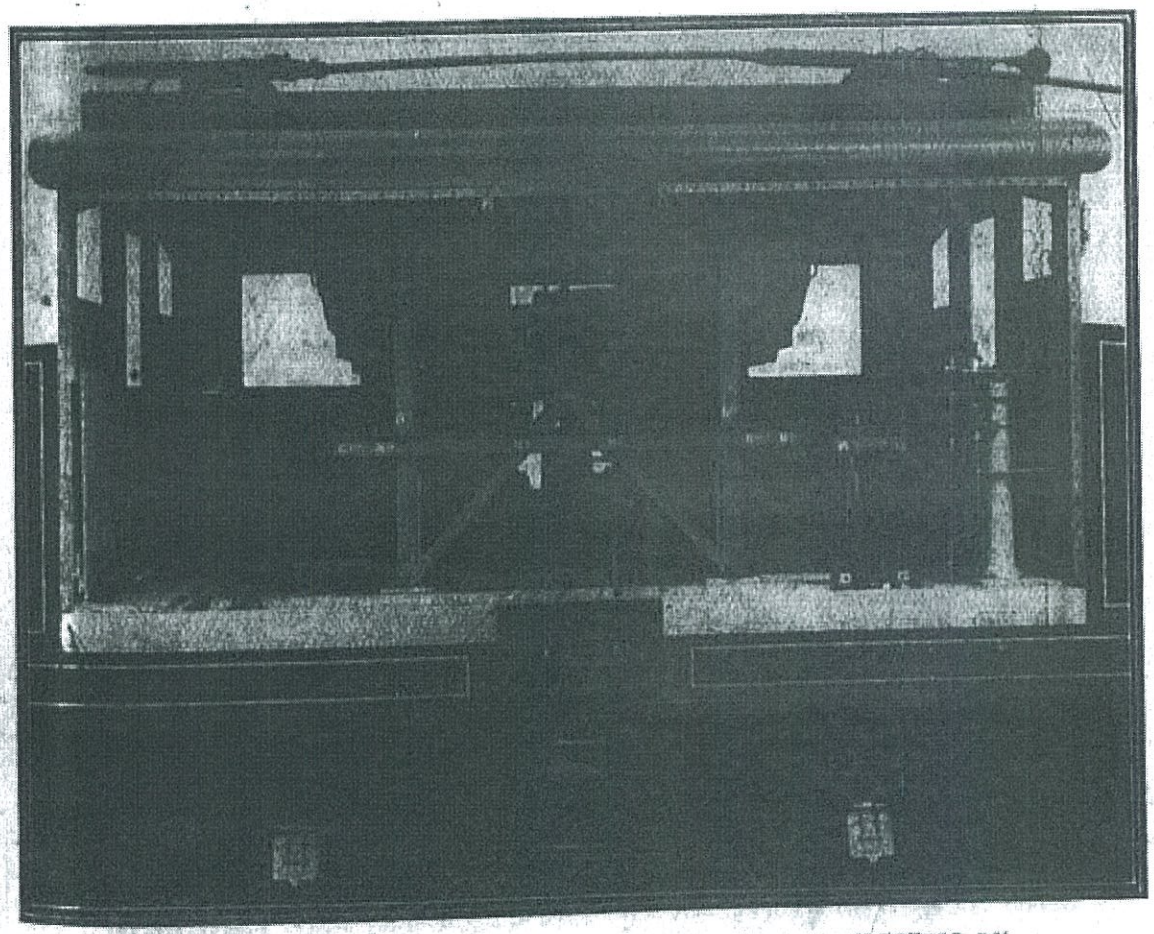

INTERIOR OF ELECTRIC LOCOMOTIVE CAB. B.C. ELECTRIC RY.

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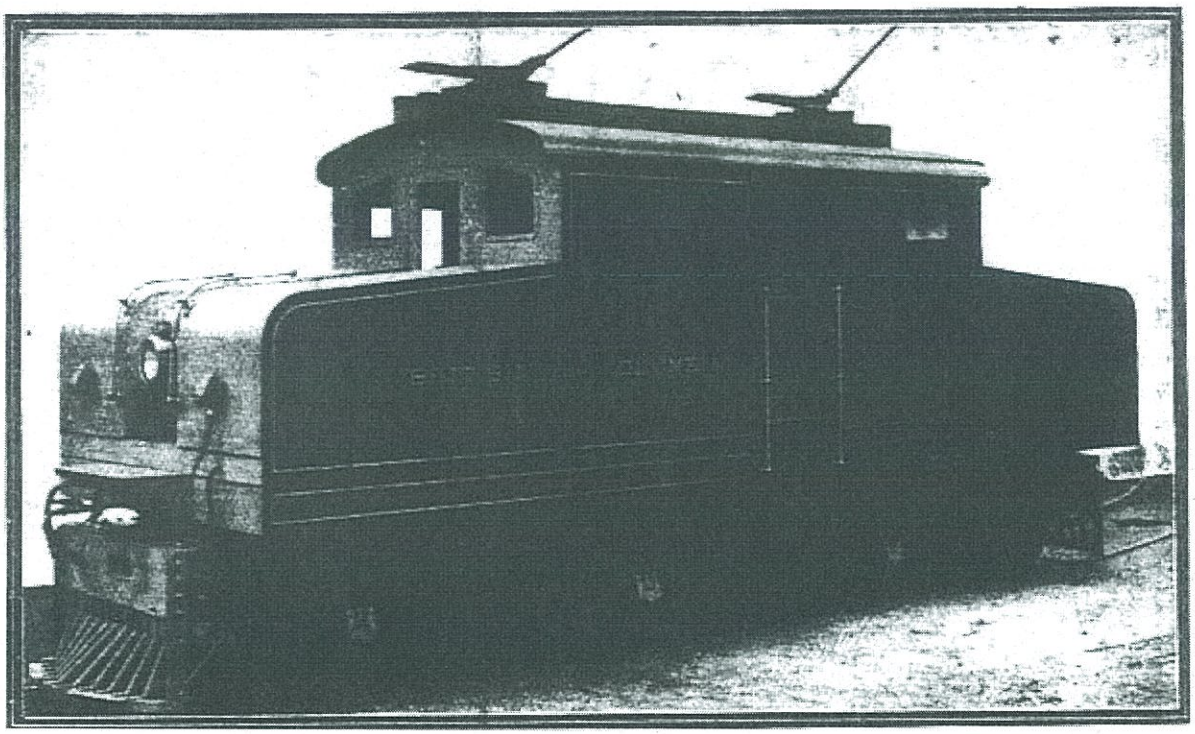
Following are general dimensions, etc.

Number of motors	4
Gear ratio	3.64 to 1
Number of driving wheels	8
Diameter of driving wheels	42"
Total wheel base	24' 6"
Wheel base of each truck	8' 0"
Length over all	35' 7"
Length of main cab	16' 5"
Height of cab above rail level	14' 1½"
Width of cab	9' 8"
Total weight of locomotive	50 tons

The locomotives were built by Dick, Kerr & Co., Ltd., the electrical equipment at Preston, Eng., and the trucks and mechanical portion generally at Kilmarnock, Scotland.



October 1909