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Grand Trunk Railway Oil Burning Motor Car.

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For a great many years the G.T.R. has had a small motor car operating on the International Bridge over the Niagara River, between Bridgeburg, Ont., and Black Rock, N.Y. This car is of very small proportions, about the same as a small sized electric street car, only with steam motive power, a small coal fired boiler occupying one end. About three years ago, a larger car was built for the same service, having the same general size as that of a standard passenger car, similar in construction to the oil-burning motor car in fig. 1, which is under discussion in this article. This second car, coal-burning like its predecessor, proved such a success in this service across the bridge, that it led to the consideration of the advisability of extending the service from Black Rock to Port Colborne, Ont. The coal-burning car is now mak-

Truck One, 4-wheel, 34-in. steel tired wheels
Truck, wheel base 8 ft.
Truck journals $4\frac{1}{2}$ x 8 ins.
Doors, passenger end 6 ft. 6 ins. x 2 ft. 2 ins.
Doors, motor end 6 ft. 8 ins. x 1 ft. 9 ins.
Wheel base 52 ft.

The car is divided into three compartments. The passenger compartment is 31½ ft. long, smoking, 11 ft. 7 ins., and engine room, 16 ft. All compartments are 8¾ ft. wide. The seating capacity in the passenger end is provided for by 26 double seats, and two settees, seating 6 passenger each. All these seats have medium height backs, and are upholstered in imitation leather. The accommodation in the body of the car is 42, with 16 in the smoking compartment, a total capacity of 58. Both passenger apartments are finished in mahogany, varnished and polished.

Firebox 36 3-16 ins. long x 38¾ ins. wide
Tubes 144 1½ in., 5 ft. 6½ ins. long
Heating surface, tubes 308.4 sq. ft.
Heating surface, firebox 51.6 sq. ft.
Heating surface, total 360 sq. ft.
Grate area 9.6 sq. ft.
Water tank capacity 1,620 U.S. gals.
Oil tank capacity 313 U.S. gals.

The boiler is of the usual locomotive type, considerably shortened. It is provided with sand box and steam dome, as is customary, and the safety valve, instead of being an independent dome, is attached to the top of the steam dome, a large diameter vent leading from the latter outside the roof of the car. The sand box has four leads, one for both front and rear of each driving wheel, for the car is intended to operate in either direction equally well. The smoke stack, located immediately in front of the sand box, has an outer lag-

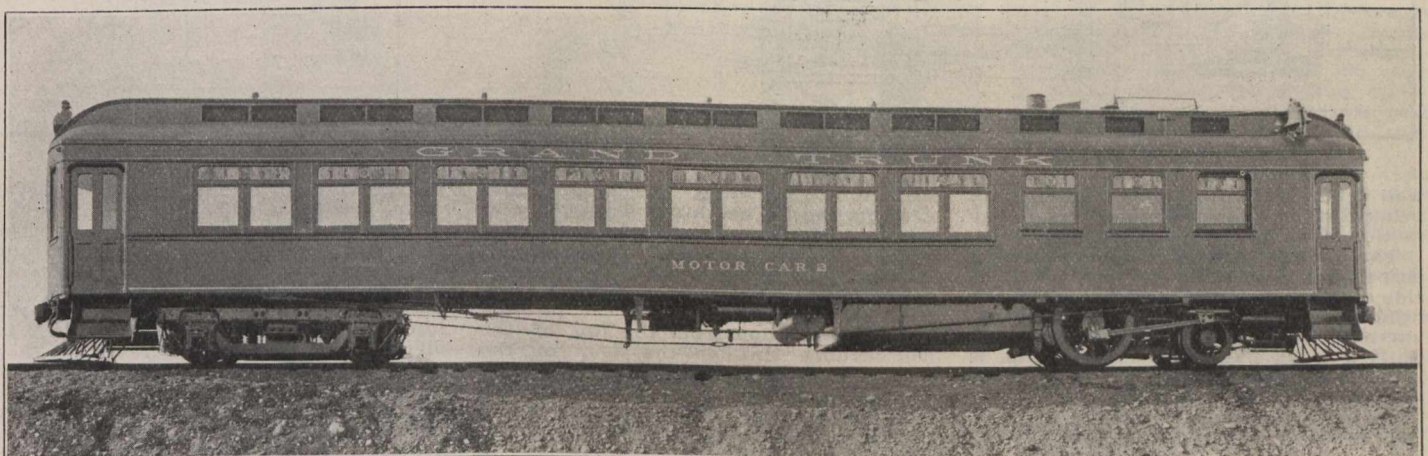


Fig. 1. Grand Trunk Railway Oil Burning Motor Car.

ing 24 round trips a day between the two border towns, accommodating people whose business calls them back and forth to Buffalo, Black Rock being a suburb of that city.

The north shore of Lake Erie, as far west as Port Colborne, is one of Buffalo's favorite nearby and summer resorts, and the summer traffic along that portion of the Black Rock to Goderich branch of the G.T.R. Middle Division is fairly heavy. This traffic, being suburban in its nature, in order to be developed properly, required a more frequent service than would be profitable were complete train units to be operated to meet this demand. This led to a further development of the coal-burning car used so successfully to cross the bridge.

An oil-burning car was built at the company's Point St. Charles shops, Montreal, of the same general size, but with the elimination of the use of coal, which made the services of a fireman unnecessary. This motor car is shown in fig. 1, the other illustrations showing the motive power details. Following are the principal dimensions of the car:—
Length over end sills 60 ft.
Length over drawbars 71 ft.
Width of body 10 ft. 1 in.
Width of upper deck 6 ft. 2 ins.
Width over lower tail lamps 11 ft. 3 ins.
Height from rail to top of roof, over all...
..... 14 ft. 8½ ins.

Four acme oil lamps furnish the car lighting; the heating is by straight steam. The windows are of the plain double type, with combination art glass tops, 17 to a side, with two on the end. The blinds are pantastote roller type, with clip fixtures. The deck sashes correspond in number to the side windows. The floor covering consists of a centre strip of linoleum.

The outside painting is of the usual G.T.R. standard dark green color with broad stripe ornamental trimmings. The roof is covered in modern canvas style.

The locomotive end and its general arrangement with regard to the car body are shown in fig. 2, the car body at that end being roughly outlined about it, as indicated. Following are the principal dimensions:—

Gauge 4 ft. 8½ ins.
Service Suburban
Fuel Crude oil
Tractive power 4,876 lbs.
Weight of car, motor end 64,400 lbs.
Weight of car, total 101,100 lbs.
Wheel base, engine 6 ft. 2 ins.
Cylinders 11 x 16 ins.
Valves Slide
Driving wheels, diam. 54 ins.
Radial truck wheels, diam. 33 ins.
Driving wheel journals 7 x 8¾ ins.
Radial truck journals 6 x 7¾ ins.
Boiler Radially stayed
Boiler, diam. 3 ft. 6 ins.
Pressure 160 lbs.

ging pipe to protect the roof of the car from excessive heat. Both stack and safety valve vent project a short distance above the top of the car, as the illustration shows.

The motive power unit comprises a complete single driver locomotive, with a radial trailing truck, the frame and spring rigging, etc., being practically the same as in a locomotive of the usual construction. The car sills are attached front and rear to this frame.

A throttle lever on top of the boiler, on the engineer's side, connects with the throttle in the steam dome. The steam, on its path to the cylinders, passes along a 3-in. dry-pipe located in the boiler body over the firebox, coming out through the back head and passing down around the firedoor opening to a tee head, where it branches out each side to the cylinders attached to the outside of the frames. The exhaust from each cylinder passes into a 2½-in. looped pipe leading halfway along under the boiler, connecting there through a tee head having sweeping curves to a 3½-in. pipe leading forward between the frames and up into the smokebox. An exhaust pipe of good design provides ample draft.

The cylinders, located under the platform at the rear end of the boiler, are different from the usual locomotive type