

out coil, which effectually extinguishes the arc whenever the switch is opened. The switches are normally held open by strong coiled springs, contained in the cylinders, and are closed against the action of the springs by compressed air. Since the air under normal pressure exerts a force approximately double that of the spring, the action of the switch in either opening or closing is always quick and positive.

The master controllers are located at either end of the locomotive cab. Two levers are provided on the master controllers, one for notching up and one for reversing. The reverse lever is mechanically interlocked with the operating handle, so that it cannot be thrown unless the main drum is in the off position. There are four running positions on the drum, together with seven resistance notches in series and five in parallel. The running positions are short and full field in series and short and full field in parallel.

With forced ventilation, the motors and auxiliary apparatus has sufficient capacity to enable the locomotives to exert continuously a tractive effort of 9,200 lbs. with an average of 600 volts at each motor. With 750 volts at the motors the locomotive is able to exert a tractive effort of 13,800 lbs. for one hour at approximately 14 m.p.h. With 25% adhesion the locomotives are able to exert a maximum effort of 30,000 lbs. Their maximum speed is 40 m.p.h.

The equipment includes Westinghouse air brakes, which can also be operated by hand; air signal; one foot gong; two air whistles and a locomotive bell with air ringer.

The locomotives were ordered from the Canadian Westinghouse Co. and were built in the Westinghouse works in the United States.

### Additional Cars for Toronto Civic Railway.

The City of Toronto Works Department has received tenders for the supply of 13 semi-steel, double end, double truck, city cars, to be delivered in knock down shape at the Danforth Ave. car barn, where they will be assembled. Contracts will be awarded under six separate heads, viz., car bodies, trucks, motor equipment, air brake equipment, wire and cable, and fare boxes. The general dimensions of the car bodies are to be as follows,—

Length over corner posts .....	31 ft. 8 ins.
Length of each platform from outside of end sill to outside of dash, on the centre line .....	7 ft. 8 ins.
Length over bumpers .....	47 ft.
Maximum width at drip rail .....	8 ft. 6 ins.
Width over posts at belt rail .....	8 ft. 4 3/4 ins.
Height from top of rail to top of trolley board .....	11 ft. 8 1/2 ins.
Truck centres .....	19 ft. 8 ins.
Driving wheels, cast iron .....	33 ins.
Pony wheels, cast iron .....	21 ins.
Truck wheel base .....	4 ft 10 ins.
Seating capacity .....	48
Motors per car .....	2
Speed, including stops, miles per hour .....	11
Minimum centre radius of horizontal curves .....	35 ft.
Approximate weight .....	20,000 lbs.
Height of steps, top of rail to top of first step .....	14 ins.
First step to platform floor .....	12 1/4 ins.
Platform to body floor .....	10 1/4 ins.
Ramp in floor from end sill to bolster .....	3 ins.
Body floor to top of rail .....	3 ft. 3 1/2 ins.

It is specified that the body bolster shall be designed to carry a safe load of 11,000 lbs. at each end when supported in the centre, allowing a safe unit stress in tension at the outer fibre of 12,500 lbs. per sq. in. The side bearings, to be of approved design, are to be mounted 26 ins. on each side from the centre of king pin, which is to be supplied by the builder, the centre plate of approved design to be furnished by the truck builder. Cars will

be supplied with cast steel pull couplers bolted to centre platform knees. The inside finish will eliminate all corners where dust and dirt are likely to accumulate. The interior finish will be no. 1 red cherry. The side sheathing will be a 9-64 in. plate with top, bottom and intermediate stiffening. Side posts will be of ash, notched out to give air circulation between panels, and be bolted to side girder. The interior finish below bolt rail will be cherry veneer with a layer of tar paper inside. The roof framing will be of the plain arch roof type, covered with tongued and grooved poplar sheathing and 8 oz. cotton duck.

The door operating mechanism will be arranged so that the step will drop into place as the door opens, and will fold as the door shuts, and the doors will be arranged to lock in position when either open or closed. Four automatic ventilators will be provided on each side of car, with openings 5 1/4 by 7 1/4 ins. The general equipment is to include four straps over each longitudinal seat, with celluloid hand hold, Consolidated Car Heating Co.'s push button buzzer system of the trolley operated type, signal bells, forced draught heaters, foot gong, motorman's seats, Crouse-Hinds type Z headlight at each end, Coleman no. 4 stationary fare box at each end, H. B. life guard at each end, trolley catcher at each end, fire extinguisher, sanding apparatus, etc. The seats, of which there will be 16 of the walkover type arranged crosswise, and 4 longitudinally, will be of cherry, with sandboxes, lockers, etc., under the longitudinal seats. The air brake equipment is to be of General Electric type with C.P. 27B compressor, and the motor equipment of Canadian Westinghouse type with no. 533 fully ventilated interpole box frame street railway motors and K. 51 A controllers arranged for field control, etc.

In addition to tenders for the supply of the necessary materials to enable the Works Department to assemble the cars at the car barns, separate prices for the assembling of the parts and the installation of the equipment are also under consideration.

### London and Port Stanley Railway Earnings.

Following is a statement for six months ended Dec. 31, 1915, as supplied by the Auditor and Treasurer, J. E. Richards. The figures include the actual receipts and expenditures for the first five months, December being estimated the same as for November:—

REVENUES.			
Passenger .....	\$63,758.34		
Freight .....	78,456.23		
Miscellaneous .....	3,523.27		\$145,737.84
OPERATING EXPENSES.			
Miscellaneous .....	\$1,111.60		
Power .....	17,949.60	\$99,061.20	
FIXED CHARGES.			
Interest .....	18,778.14		
Sinking fund .....	4,139.52		
Rental .....	10,000.02		
Taxes .....	3,481.32	\$36,339.00	\$135,460.20
Net earnings .....			\$10,277.64

### Brantford Municipal Railway Commission.

—Brantford, Ont., ratepayers, at the municipal election, Jan. 3, elected C. H. Hartman, W. R. Turnbull and F. J. Calbeck as the commission for 1916. Messrs. Hartman and Turnbull were commissioners last year, and Mr. Hartman headed the poll this year, although he strongly opposed the sale of the Paris-Galt section of the Grand Valley Ry. to the Lake Erie & Northern Ry., which the ratepayers authorized by a majority of some 300. A. K. Bunnell, City Treasurer, who was a commissioner last year, was defeated.

### The Edmonton Power Company's Railway Project.

For some time past there has been considerable speculation in Edmonton, Alta., as to the plans of the Edmonton Power Co., which is seeking to obtain a franchise for the supply of electric power in Edmonton at a price which would compete with the plant owned by the city. After considerable agitation a bylaw was submitted to the ratepayers in Nov., 1915, authorizing the granting of a franchise, and was approved. The city council, on Nov. 24, refused to give the bylaw a third reading pending certain modifications in its terms, and on Dec. 7 an interim injunction was obtained to restrain the council from passing it. A local court, on Dec. 10, dissolved the injunction, holding that the bylaw was merely an agreement to grant a franchise, which must have the sanction of the Alberta Legislature before it could become operative. The bylaw again came up for consideration by the city council on Dec. 24, when it was approved by a vote of 7 to 4. Three aldermen protested against its passing, and the Mayor said that he would not sign the agreement; that he had put the motion before the council, as he was compelled by law to do, but that he would not go any further.

At the same meeting an intimation was given that application was given for the incorporation of a radial railway company in connection with the company's power development project, under the title of the Edmonton and South Western Ry. Co. The notice of application to the Dominion Parliament respecting this company states that power is desired to build a railway from Edmonton southwesterly to the Saskatchewan River, near Blue Rapids, 70 miles, together with telegraph and telephone lines, and with power to use part of its right of way for a power transmission line. It is asked that the railway be declared to be an undertaking for the general advantage of Canada, and that the company have power to enter into agreements under the terms of sec. 361 of the Railway Act with the Grand Trunk Pacific Ry., the Canadian Northern Ry., and the Canadian Pacific Ry., or any of them. Pringle, Thompson, Burgess and Cote, Ottawa, are solicitors for applicants.

A local newspaper article respecting the company's power development plans states that the project has been under investigation for about three years by Sir John Jackson, Limited, a British firm of engineers and contractors, that the site of the proposed dam is on the Saskatchewan River, about 65 miles southwesterly from Edmonton, but considerably further by the river, that the dam will be 1,500 ft. long, and 105 ft. high, and will make an artificial lake of 60 square miles, that the power plant development is estimated to cost \$6,000,000, that for the purposes of the company a 65 mile railway will be built to the power plant site, by an independent but apparently associated company. The route through which the railway is projected is reported to be fairly well settled, and should offer considerable opportunities for further settlement. G. W. Farrell and Co., Montreal, who are interested in the project, state that they are unable to give any information as to the company's plans until after legislative sanction has been obtained.

The Regina, Sask., City Council has appointed Aldermen Wilson, Baker, Black and McInnes as its street railway committee for the current year.