## NORTH YONGE RAILWAYS

## C H RIFF

## Electric Railway Department

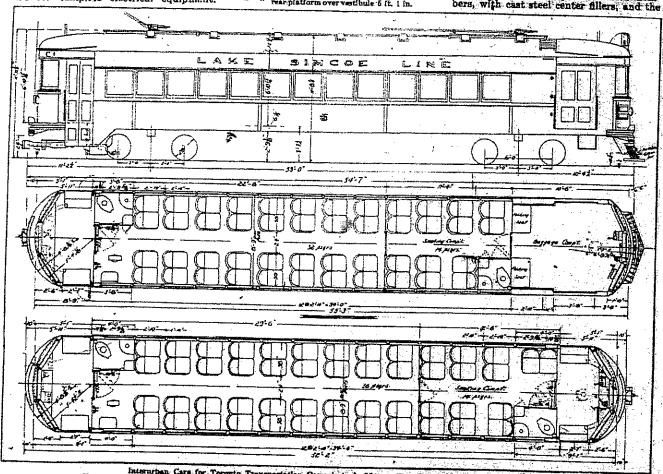
## Interurban Cars for Toronto Transportation Commission.

The Toronto Transportation Commission received tenders to Dec. 16 for 14 cars, 8 combination passenger smoking-baggage type and 6 combination passenger-smoking type, for the Metropolitan Division of its radial railways, which extends from Toronto north to Sutton, on Lake Simcoe, and which is known locally as the Lake Simcoe line. Tenders were requested under three heads, viz., for bodies and trucks; for complete air brake equipment, and for complete electrical equipment.

units or in trains. The design is such that a minimum of weight, combined with the required strength of all parts to withstand such strains as may develop in city and interurben high-speed service, will be secured. The general dimensions will be as follows:—

Length	over bumpers
17	" vestibule
**	Of Demander name of the Co. At 1
44	of pamenger compartment. :26 ft. 4 in. "smoking compartment. :11 ft. 4 in.
**	baggage compartment 10 ft 6 in.
**	" rear platform over vertibule 5 ft. 1 in.

o.h. steel. The center sills will be continuous from buffer to buffer, passing through the cross-bearers and bolsters, and the underframe will be strengthened by disgonal bracing. The side sills will be of steel angles, continuous on each side between front end and rear corner poet, and the body end sills will be of the built-up type, with top and bottom cover plates and disphragm filler. The body bolsters will consist of steel top and bottom members, with cast steel center fillers, and the



Interurban Cars for Toronto Transportation Commission's Metropolitan Division. Hadial Ballways.

Upper, devadion of passenger-emoking-baggage car; Middle, floor plan of same; Lower, floor plan of passenger-emoking car,

The cars will be of the most modern highspeed interurban type, and will be operated through from a terminal in downtown Toronto. They will be fashed in the Commission's standard color scheme of red with cream trim.

The combination passenger-smoking-baggage compartment cars will be of steel construction, with straight sides, rounded ends, arched roof, single sash arranged to raise, and folding doors and stationary steps on each side at the rear. They will be arranged for single-end operation, and equipped with 4 motors, double-end multiple unit control, and air brake equipment. The baggage compartment will be at the front end, the smoking compartment next, and the main passenger compartment at the rear. While, as stated, the cars are primarily for single-end operation, a controller and brake equipment will be installed in the rear vestibule to permit of swergency operation from that and. The rare will be suitable for operation as single

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With regard to the 5 ft 314 in dimension, rall to top of floor, it is the Commission's desire to keep the floor lave as near to top of rail as underframe construction will permit.

The seating capacity of the main passenger room will be 32, of the smoking compartment 14, and of the bagyage compartment, where folding seats will be provided, 4, providing total seating capacity of 50. Passenger entrance and exit will be at the rear, which arrangement will preclude the necessity of women passengers passing through the smoking compartment.

All underframe members will be of

bolaters will be fastened to the side sills with steel castings. The body side hearings will be 4 x 1 in. steel plates, secured to the body holsters so as to provide for easy replacement. The center plates will be the Commission's standard weather-proof self-lubricating type. The undertrams is designed to carry a uniformly distributed passenger load of not less than 125 lb. per sq. in.

The humbers at each red will be 400.

125 lb. per sq. in.

The bumpers at each end will be of 8 in.
11,25 lb. channel, inverted, reinforced on the outside with a ? in. 4-sibbed anti-climber section and there will also be a 6 x 3 x ½ in. asgle section about 4 ft. long, rivetted to the top flange of the bumper channel and reinforced with brackets consuscited to the center sills. A ? in. steel channel about 4 ft. long will be rivetted to the bumper channel, which will be reinforced on the outside which will be reinforced on the outside with a ? in. 4-sibbed anti-climber section, and reinforced with brackets connected to the center sills.

The flooring will be in 2 thicknesses, with 3-ply waterproof paper between. The lower floor will be of 2½ in face 1/4 in thick t and g white pine laid diagonally, and the upper of 23½ in face 1/16 in thick t and g. B.C. fir. There will be no motor trap doors in the floor. The top flooring in the baggage compartment, and also the rear vestibule, will be 1 5/16 in yellow pine: The entire floor of car will be covered with 5/16 in iniaid rubber of two tone grey color and diamond rubber of two-tone grey color and diamond

pattern.

The body framing will be of steel throughout. The side posts will be of o.h. steel rolled T bars inserted in white ash wood posts; the side girder plates below the windows will be 12 gauge o.h. cold rolled box annexied steel, the letter board will be 14 gauge steel of similar quality, and the belt rail, of flat steel bar ½ in. thick by 3 in. at base and 2½ in: on face, will be continuous between the body corner nosts and side door openings on corner posts and side door openings on both sides of the car, and around the vestibules. The sash rests will be 16 yauge o.h. steel pressings, rivetted to belt rail and side sheathing, and electrically welded to provide waterproof joints.

welded to provide waterproof joints.

The roof, of the plain arched design, well have poplar roof boards ½-in. thick by 2½ in. face, t. and g., covered with no. 8 duck laid in white lead and oil. Steel angle carlines will be used at each post, with white ash carlines holted to the ateel ones, and 2 wood carlines will also be provided between each pair of steel ones.

The front vestibule will be fitted with 8 stationary single windows, and the year

the front vestibute will be natical with 3 strionary single windows, and the rear one with 2 stationary side windows, and a middle window arranged to drop, with rubber cushion at bottom of such pocket. rubber cushion at bottom of such pocket. The headlining will be 5/16 in. Agasote, and the vestibules will be fitted with bronze grab rails. The rear vestibule floor will be covered with 1/2 in rubber tile. The stationary steps at each side of the fear vestibule will each have 2 oak treads, with sheet steel risers and hangers. Outside appliances will include 2 runing boards, of vellow pine; supported on

Outside appliances will include 2 running hoards, of yellow pine, supported on oak saddles, on the roof; a trolley bridge consisting of 2 planks 7% ft long, at each end of roof, on which trolley bases will be mounted; round iron trolley rope guard at each end of ear; gutters in roof over all doors; Commission's standard ladder steps at talk front armore heart of houses doors. at right front corner, back of baggage door, and 2 trolley hooks at each end of car.

The interior finish, except baggage com-partment and partitions, will be in genuine. African mahogany, and the headlining will. African mahogany, and the headlining will be in 5/16 in. Agasate, formed to the roof radius. The advertising racks will be arranged to take 11 in. cards, and will have wood mouldings top and bottom. The wainscoting or inside lining will be of M in, manogany-faced Haskelite.

Lavatories are to be provided at the rear left side of the car; in the main passenger compartment for women, and in the front right side of the smoking comin the front right side of the smoking compartment, for men. Each will contain flush-type car closet, nickeled corner washstand, beveled plate mirror, drip-type disinfecting appliance, etc., and a round copper tank of not less than 25-gall capacity will be located in the space between the car roof and the ceiling in each lavatory. These tanks will be removable from inside the car. A sanitary water cooler with ice and water in separate compartments will be installed in the assessite of each lavatory, with drinking cup container nearby.

of each isvatory, with drinking cup container nearby. There will be 13 windows on each side of the car, each with single sash arranged to raise. All sash will be of brass, and of lockless type, and weather stripped with rubber on the bottom and fabric on the top. The window guards will be of seam-

less steel tubing, 3 rods per suard.

The door in the steel hulkhead at the rear will be of swing type, of manogany, with upper and lower portions glassed with 3/16 in. non-mattership glass. A double leaf folding door will be provided on each side of the rear plantorm, swinging outward; these will be of mahogany, glassed in the upper and center portions, with the lower portion panelled. The doors will be arranged for separate manual operation arranged for separate manual operation from the conductor's location in the rear of the car body. These doors will be inter-locked with the control circuit. Single swing-type doors will be placed between the main passenger room and smoking compartment, and between the smoking compartment, and between the smoking and baggage compartments; these will be of malegany, and glazed in the upper portion and panelled in the lower. All interior doors will have door checks. The partition at the rear, with a window on one side of the door, that between the main passenger room and smoking compartment, with windows at each side of door, and that between the smoking and baggage compartments, with windows at each side of door, will all be of steel. Iron grills on the baggage room side will be fitted on the windows in the latter partition.

The side doors in the baggage compart-

The side doors in the baggage compartment will be of ash, with 3 ft. 8 in opening, and glazed in the upper portion. Brackets for storing marker lamps, metal cupboards and coat hooks will be installed in the baggage compartment, the control apparatus will be arranged for center drive, and a railing will be installed back of the motorman's position.

The seating arrangement will be as

The seating arrangement will be shown on the accompanying plan. The seats are to be of the double bucket semiindividual stationary type, equipped with suitable foot-rest. Those in the smoking compartment will be upholstered entirely in genuine hand-buffed leather, and those in the main passenger room similarly, except that the back spring pads and the air spring cushions will be covered with mohair plush or velvet velour. A leatherupholstered drop seat will be provided for the conductor, and a revolving leather-upholstered spring-back seat for the

motorman.

Two illuminated signs will be provided at the front; Peacock staffless hand brakes will be provided at each end; a lightweight steel locomotive type pilot will be fitted at each end; the cars will be equipped with 2 air sanders at each end, complete with valves and hose, and drawbar couplings to be supplied by the Commission and installed by the builder, will be applied at the rear end. The front end will be equipped with a drawbar anchorage for use with the Commission's standard detachable drawbar and cast steel head, and tachable drawbar and cast steel head, and the same kind of drawbar and head, with adapters for use when coupling to train coupler, will be provided with each car. Drawbar pockets will be provided in both the front and rear bumpers.

the front and rear bumpers.

The cars will be heated by 28 electric heaters in passenger space and lavatories, and 2 in the baggage compartment, arranged 5 in series. An alumnium duct will extend the full length of the passenger space on each side, in which the heater units will be mounted, and the conduits conveying the heater wires will be removable grills in the heater duct opposite each heater unit. The heater circuits will have control switches and fuses; the heaters will be controlled by thermostatic appliances. control switches and times, and dealers will be controlled by thermostatic appliances, and a snap switch will be provided at the motorman's position for by-passing the thermostat while passing under electric track switch contactors. A 600-volt cab heater, to be centrolled by a separate switch will be installed in the baggage

comparament, near the motorman's post-

tion:

The lighting circuits will provide for 5 lights in the baggage compartment, 4 m the lighting days, a center dome fixture in the rear vestibule, two 2-imp dome fixtures in the annoking compartment, four 2-lamp dome fixtures in the main passenger room; a light at the motorman's sir gates; a light in each livator; 2 lights above the rear steps, and selight in each electric marker box on the corner posts. There will be an incandescent heatight on the front vestibule roof, and in additions city type headlight in the center of the front and rear dashes. The latter will be arranged for illumination through a shunt switch, by shunting the current from one ranged for illumination through a shunt switch, by shunting the current from one of the car lights to the headinght. Bad and green signal lights will be installed in the rear dash. The marker light boxes will be equipped with discs having red, green and white glass. There will be a switch cabinet in the baggage compartment in which all light switches will be installed; unless otherwise specified, the cabinet to be of steel with transits board lining with switches and tuses mounted on a separate panel. All wiring in the carri will be installed in galvanized steel conduit, except the cable from trolley to pothead and lightning arrester, which will be open, and the wiring for the buxer and single stroke bell, systems. bell systems.

The truck specifications called for trucks of other than archibar type, with spring equipment of the graduated type, and with semi-steel journal boxes for 4% x 8 in journals. The exterior and the wheels semi-steel journal bores for 4% x 8 in journals. The axies/are to be in accordance with A.F.R.A. standards, and the wheels will be 28 in diam rolled steel, A.F.R.A. standard; with 3½ in tread. Brake hangers will be of the ball joint type. The truck bolaters will be of cast steel, and fitted with non-rattling ball joint bolater guides, to prevent excessive side-swaying and horizontal movement of the carbody. Body equipment other than that specified in the foregoing will include trolley retriever on rear dash; bronze vertical grab handles at rear doors and forged from grab handles at baggage compariment

grab handles at rear doors and forged from grab handles at baggage compartment doors, 14 ventilators per car, motor-driven exhaust fan for each lavatory, rotary slarm gong at each end of car, parcel racks at each side of main passenger room and smoking compartment, double-faced Murocco grain Pantasote curtains on all-metal rollers on all side windows and an windows. roners on an side windows, and on windows and doors in partitions, makegany or cherry storm sashes for side windows, easily removed and installed, fare collection devices and registers to be installed by the Commission, meter to register current used by motors are store food. rollers on all side windows, and on windows used by motors, wrecking tools, first aid cabinet, fire extinguishers, flag box with hinged lid and glass front in rear bulkhead, marker brackets for flags and lamps on all 4 corners of car, 5 match strikers in smoking compartment, mirrors mounted to give ing compartment, mirrors mounted to give motorman a clear view of rear steps, 25-bronse ticket holders per car, high voltage push button buzzs system, single stroke bell signal system, 2 deep toned air whistles per car, and control equipment cabinet at rear end of car.

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rear end of car.

The braking ratio for the cars is to be figured at 100% of light weight, based on 50 lb. per sq. in cylinder pressure. The piston travel will be 5 in., and emergency piston travel will be 5 in., and emergency application brake cylinder pressure will be 75 lb. per sq. in. All holes in the foundation brake rigging levers and jaws will be fitted with case-hardened seamless steel, bushings, and all connecting pins will be case hardened.

In asking for tenders for complete sir brake equipment, the Commission spect-fied weight of car, less equipment, as 40,000 lb., seated passenger load as 7,800 lb., total passenger load 15,000 lb., trolley. voltage. 50; and free running speed 56 mp.h. It also gave full particulars of the Metropolitan Division, on which the cars will operate, in regard to grades, speeds, stope, etc. The air brake equipment on which tenders were invited included compressors, cylinders, automatic slack adjusters, reservoirs, brake vaives, governors, conductor's emergency vaive, gauge, safety vaives, compressor switch and tuse, and miscellaneous fittings.

In asking for tenders for electrical equip-

and miscellaneous fittings:

In saking for tenders for electrical equipment, the Commission made accessible to tenderers information similar to that furnished the air brake-equipment tenderers. The electrical equipment on which bids were asked included, for each carried motors, box frame, ventilated commutating, pole type, with helical gears and pinions, and gear cases; control (multiple unit) apparatus for double-end operation, light-weight type starting resistance, trolley base with pole, harp and wheel, trolley fuss box, electrolytic lightning arrester, choice coil, and power and control cables, circuit breakers, line breaker and other apparatus.

choike coil, and power and control cables, circuit breakers, line breaker and other apparatus.

Combination Passenger-Smoking Cars.

The specifications given above for the 8 combination passenger-smoking-baggage cars apply to the 6 combination passenger-smoking cars so far as consistent. The passenger-smoking cars so far as consistent. The passenger-smoking cars so far as consistent of combination passenger-smoking cars will have the following general dimensions:

Langth over bumpers.

Si ft. 10 in.

Langth over bumpers.

Si ft. 10 in.

Langth over bumpers.

Si ft. 2 in.

of passengy compartment.

Si ft. 2 in.

of passengy compartment.

Tack wheelbase were vestibutes.

Si ft. 3 in.

Width over poots.

Width over poots.

Width over poots.

Width over poots.

Si ft. 10 in.

Height rail to tap of facer.

The seating capacity of the main passenger room will be 36, and of the smoking compartment 14, a total of 50.

Each vestibute will have 2 windows with stationary sash, and a center window arranged to drop. There will be 14 windows at each side of the car, each with single sash to raise. Only one pliot per car, will be furnished, this to be dotachable and arranged for attachment to either end of car. The seating arrangement will be as shown on the accompanying plan. A coupler, with air and electrical connections, will be installed at the front end of the car; a Commission's standard drawbar with detachable cast atteel head will be installed at the root end of the car; a Commission's attandard drawbar with the installed at the rear will be arranged to permit of the installed at the front end of the car; a Commission's attandard drawbar with the installed at the rear will be arranged to provide lighting for the front stops, and for the installed to make the cars fully equipped for double-end operation. The motive and control equipment will be alminar to that of the other cars, also the lighting system, whistles and other apparatus specified for the sawtething off of lights in either vastibule without disturbing the o

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