

Principal Specifications: (Classes A-6/7/8 as rebuilt)

Length over anti-climber	46' 5 7/8"	
Width over belt rail	8' 4"	
Height — to top of roof	10' 2 7/8"	
— to top of base	11' 3 3/4"	
Truck centres	22' 9"	
Truck wheelbase	6' 0"	
Wheel diameter	25"	
Track Gauge	4' 10 7/8"	
Minimum horizontal curve radius	36' 0"	
Minimum vertical curve radii — convex	400'	
— concave	800'	
— seating	46	
Weight — Tare (W1)	37,200 lbs.	Loading at 150 lbs. per person. Weights are for A-6 & A-8; Add 1300 lbs. for A-7.
— Normal (Service) (W4) (103 passgrs.)	52,800 lbs.	
— Crush (W5) (134 passgrs.)	57,450 lbs.	

Single end control

Motor rating: Four Westinghouse 1432, each 48 HP continuous, 55 HP one-hour. Peak of 100 HP in accln, 225 HP in braking.

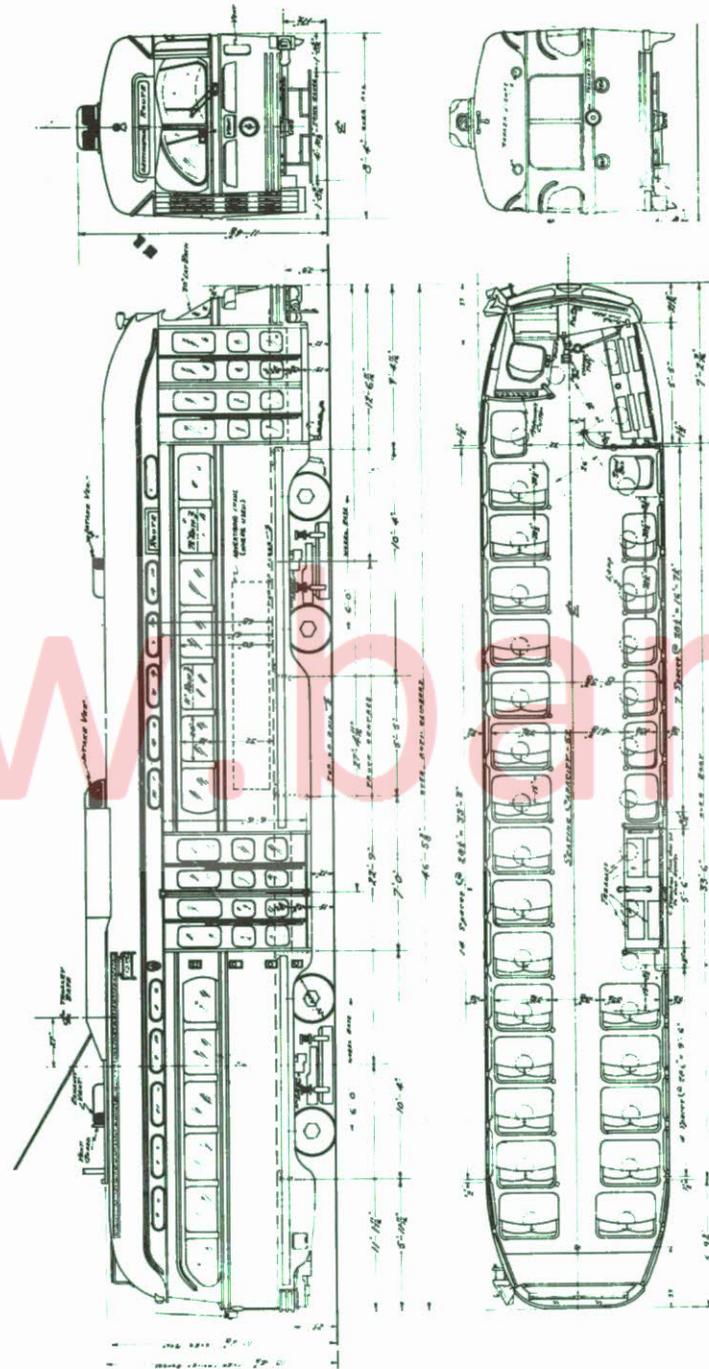
Performance: (No load weighing: based on 42,000 lb total weight)

Initial acceleration rate: 4.3 MPHPS (peak); 3.6 MPHPS (average to 17 MPH)

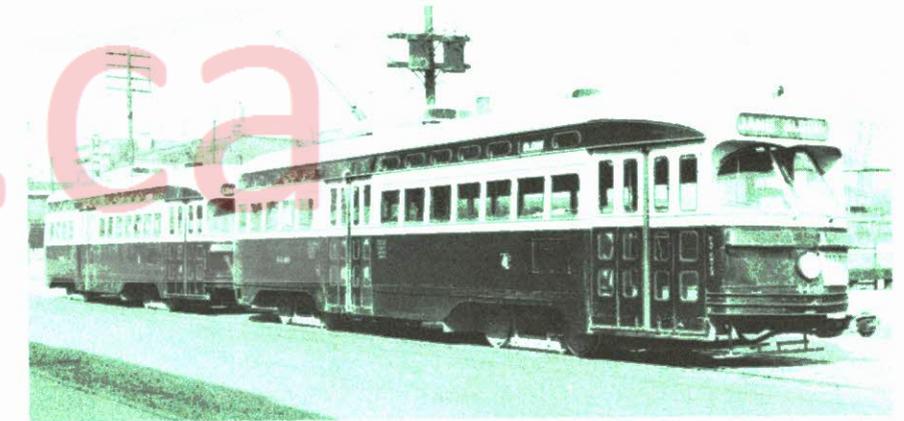
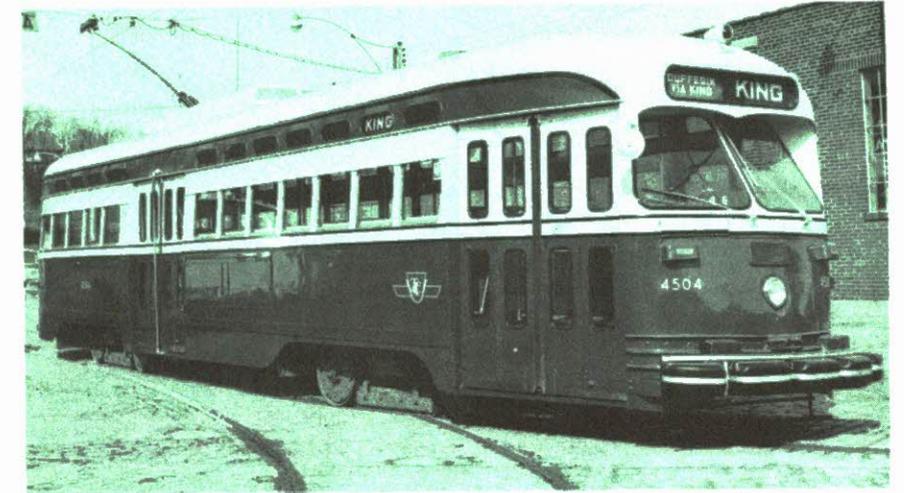
Time to speed: 30 MPH in 19 secs. 42 MPH (maximum) in 100 secs.

Braking rate: { 3.6 MPHS in service
5.8 to 9.0 MPHPS in emergency.

Jerk rate: { 3 to 6 MPHPS² in acceleration
2.5 to 6 MPHPS² in service braking.



A-7 CLASS PCC CAR



Toronto Transit Commission



THE PCC CAR
PRESIDENTS' CONFERENCE COMMITTEE CAR

APRIL 1984 (RFC)

PCC — Presidents' Conference Committee Car

In the decade following World War I, the urban transit industry experienced a series of continuing problems, which required consideration and action by the American Electric Railway Association. This organization represented all of the major transit operators, and the manufacturers who served them, in an industry served predominantly by electric railway vehicles — the street car and the interurban car.

The principal problems were:

- Declining net earnings and return on investment.
- Passenger usage becoming a smaller portion of urban population growth.
- Attractiveness of competition from the private automobile, and the bus.
- Obsolescence and high operating cost of vehicles (and systems).
- Recession in vehicle development due to the operating companies' financial plight.

At the October 1929 meeting of the Association Advisory Council, Mr. Thomas Conway Jr. was requested to prepare a proposal for a new electric railway car, and his submission, made to the executives of the principal (user) properties in December, was endorsed. An organization was created known as the Electric Railway Presidents' Conference Committee whose members, drawn from the executives of 28 transit companies and 25 manufacturers subscribed \$630,000 over the next few years to create a car which had as its principal objectives:

- A basic standard design.
- Development by group separate from the Committee Members.
- Involvement of manufacturers to result in competitive and alternative sources.
- Reduction in both manufacturing and operating costs.
- Passenger appeal (comfort, speed, etc.).
- Patents and licencing to be vested in the Committee.
- Car could be written off in 10 years!

In May 1930, Dr. C.F. Hirshfeld, a research executive of an industrial company, was chosen to head the development. After extensive research into the operating requirements, and the manufacturers' technologies, two prototype cars "A" and "B" were (successively) built and extensively tested, and then 100 cars were ordered by Brooklyn, NY in June 1935 to launch production of the "PCC Car" in the fall of 1936. In the same year the Committee's assets were turned over to the Transit Research Corporation (which became the Institute for Rapid Transit in June of 1961).

The design set new standards of excellence, and was enthusiastically received by operators and passengers. The significant features were:

- Fast, smooth acceleration and braking, at higher rates, with lower jerk and greater speed.

- Superior lighting and seating.
- Inside step wells.
- Heat recovery system and improved ventilation.
- Lightweight construction of carbody and components.
- Foot operated main controls and console arranged auxiliary controls.

When production of PCC's ceased in North America in 1952, almost 5,000 cars had been built; thousands more vehicles in post-war Europe incorporated many of the PCC features (principally propulsion systems and trucks).

The T.T.C. was an active member of both the AERA, and the ERPCC. While prepared to order the new vehicle to which it had contributed, the Commission also supported manufacture in Canada and two years were to pass before Canadian Car & Foundry Company, under licence from St. Louis Car Company (one of the two USA builders), was ready to produce with allied Canadian suppliers.

Between 1938 and 1945, the Commission acquired 290 cars of the original design, using air operation of doors, and of wheel tread brakes (for parking).

Two cars (4001, 4002) were displayed at the C.N.E. in August 1938, and the first revenue operation was on the "St. Clair" route on September 23, 1938, with 2 more routes equipped by year end.

In 1944 the TRC completed the design of an "all electric" car, which feature MG set/battery powered motor drum brakes and doors, as well as a redesigned body with standee windows and sloping windshields, and force ventilated traction motors. The Commission cancelled outstanding orders for the "air-electric" design and acquired its first "all-electric" cars in 1947-48. 250 were received between 1947 and 1951, of which 100 were equipped for multiple unit operation on the "Bloor" route — the first MU PCC wholly street operation in the world.

After PCC production ceased, the Commission was still active in replacement of its earlier cars. The last wooden (ex Toronto Railway Company) cars disappeared in 1951, and subsequently Witt cars were replaced by both the building of the 4½ mile "Yonge" subway in 1954, and acquisition of second hand PCC's from USA properties who were abandoning rail service. 205 cars from Cincinnati, Cleveland, Birmingham and Kansas City were purchased between 1950 and 1957, all of which were completely rehabilitated in the Commission's Hillcrest Shops, with the Cleveland cars being equipped for MU operation. Thus the all time PCC fleet — the largest in the world — was 745 cars, although only 744 were ever operated, since 1 car (4063) had been scrapped due to an accident in 1947.

With the opening of the "Bloor-Danforth" subway in 1966, the original 290 air-electric cars were retired between 1966 and 1974, while the second-hand cars disappeared between 1968 and 1982, as did a few of the new all-electric cars as a result of accidents.

During this period the Commission sold "operational" cars as follows:

130 to Alexandria, Egypt	in 1966 — 68	(A-1, 2, 3, 4, 5, 10)
9 to Tampico, Mexico	in 1971 — 72	(A-3, 10)
11 to San Francisco	in 1973	(A-1A)
30 to Philadelphia	in 1976	(A-13, 14)
9 to Cleveland	in 1978	(A-11)

In 1972-75, 173 of the new all-electric cars were completely rebuilt at Hillcrest to continue operating for "up to 5-10 years". There were to be replaced in base service by 200 new CLRV's and eventually replaced by an appropriate number of additional new cars by about 1984, the quantity depending on service then being operated.

As of January 1980, the Commission had 341 PCC's on the roster, of which 70 were unrebuilt new cars and 98 were second hand. These 168 cars were progressively stored and disposed of during 1980-1984, the last 17 operational cars being retired together on April 30, 1982.

With some reduction in the total number of revenue cars required (from a total of 196 CLRV's and 172 PCC's), rebuilt PCC's that experienced serious damage or failure were progressively stored from 1981, of which the first 5 were scrapped at the beginning of 1984. These, and the remainder of the fleet, are expected to be replaced by 52 ALRV's (articulated) ordered in 1984, for delivery commencing in 1986.

Due to the foresight of the Ontario Electric Railway Historical Association, the Commission's first PCC (4000) has been preserved and operates in "revenue" service at the Association's museum. Several other post-war cars are destined for preservation to show to future generations the vehicle conceived by professional and expert foresight and co-operation to meet a challenge — which it was still meeting, a half a century later — the like of which may never again occur.

Condensed Roster

Fleet Number	Class	Builder & Date	Acquired	In Service Jan. 1, 1984
4000 — 4139	A1	CC & F '38	New	(Last car '69)
4150 — 4199	A2	CC & F '40	New	(Last car '74)
4200 — 4259	A3	CC & F '42	New	(Last car '72)
4260 — 4274	A4	CC & F '44	New	(Last car '71)
4275 — 4299	A5	CC & F '45	New	(Last car '74)
4300 — 4399	A6	CC & F '47-48	New	50
4400 — 4499	A7	CC & F '49	New	27**
4500 — 4549	A8	CC & F '51	New	32*
4550 — 4574	A9	St. LC '49	Cincinnati '50	(Last car '82)
4575 — 4601	A10	St. LC '39-40	Cincinnati '50	(Last car '75)
4625 — 4674	A11	Pullm '46	Cleveland '52-53	(Last car '82)
4675 — 4699	A12	St. LC '46	Cleveland '52	(Last car '82)
4700 — 4747	A13	Pullm '46-47	Birmingham '52-53	(Last car '83)
4750 — 4779	A14	St. LC '46-47	Kansas City '52	(Last car '77)

* Includes non-revenue training car 4504

** Includes one unrebuilt car not disposed of in 1983.