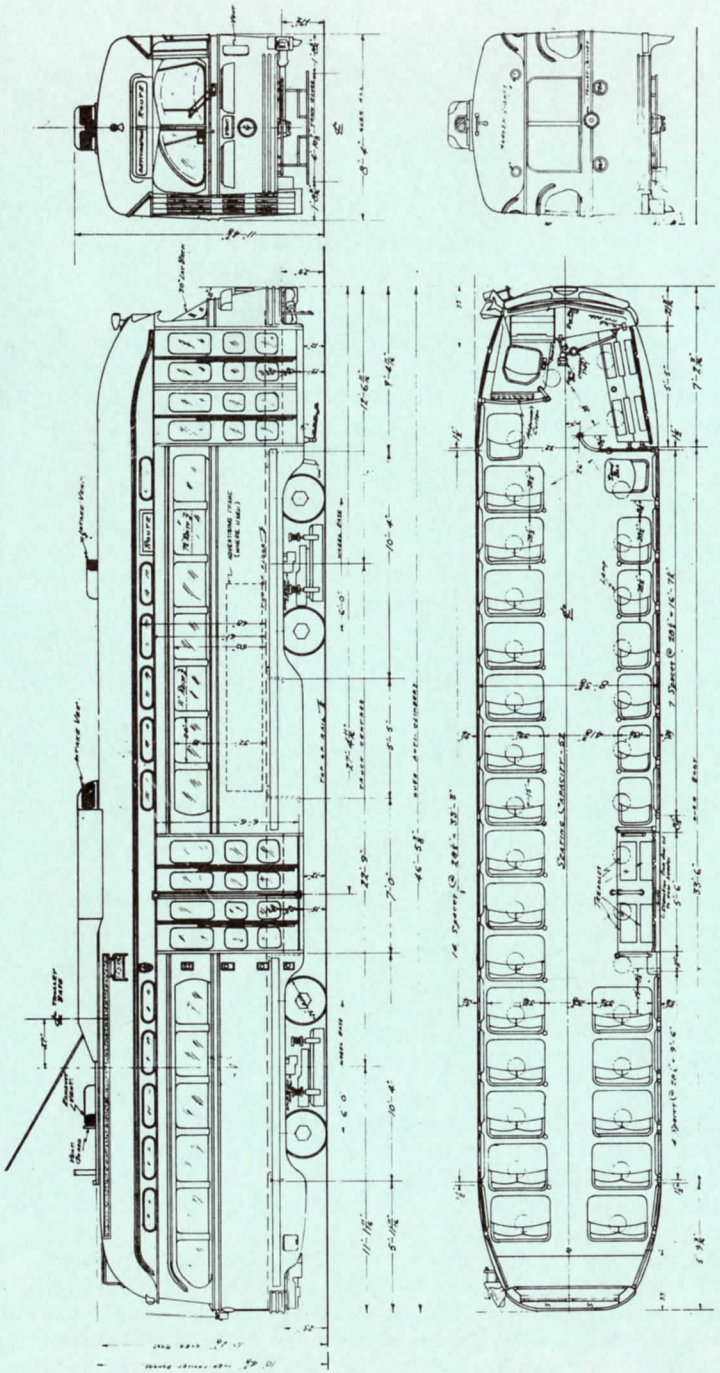
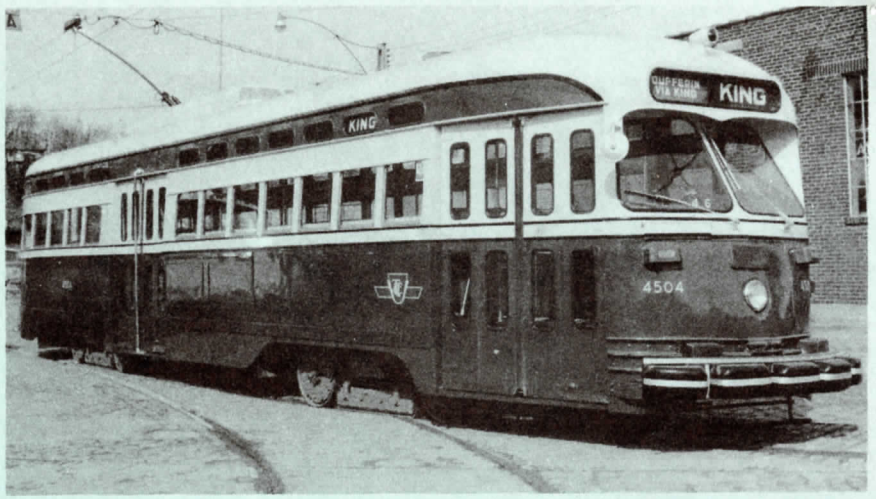
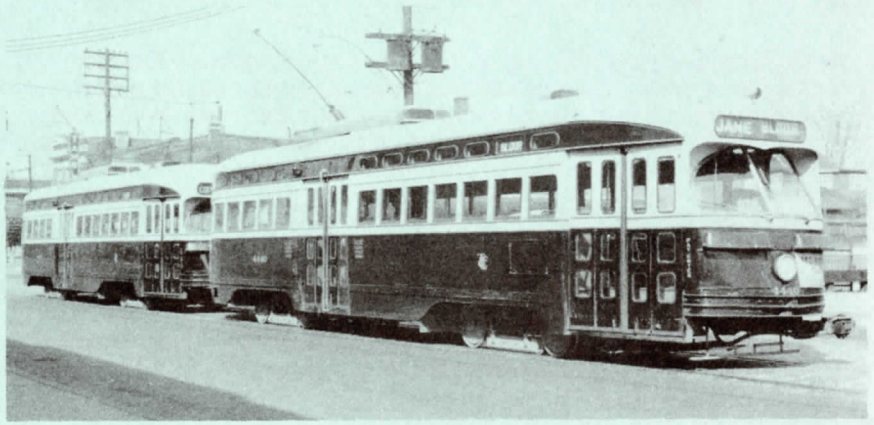


A-7 CLASS PCC CAR




# THE PCC CAR

## PRESIDENTS' CONFERENCE COMMITTEE CAR

JUNE 1982 (R F C)

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

| | | |
|---|---|---|
| Length over anti-climber | 46′ 5⅜″ | |
| Width over belt rail | 8′ 4″ | |
| Height — to top of roof | 10′ 2⅞″ | |
| — to top of base | 11′ 3¾″ | |
| Truck centres | 22′ 9″ | |
| Truck wheelbase | 6′ 0″ | |
| Wheel diameter | 25″ | |
| Track Gauge | 4′ 10⅞″ | |
| Minimum horizontal curve radius | 32′ 0″ | |
| Minimum vertical curve radii — convex | 400′ | |
| — concave | 800′ | |
| — seating | 46 | |
| Weight — Tare (W1) | 37,200 lbs. | For A-6 & A-8. Add 1300 lbs for A-7 |
| — Normal (Service) (W4) (102 passgrs.) | 52,650 lbs. | |
| — Crush (W5) (133 passgrs.) | 57,300 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.

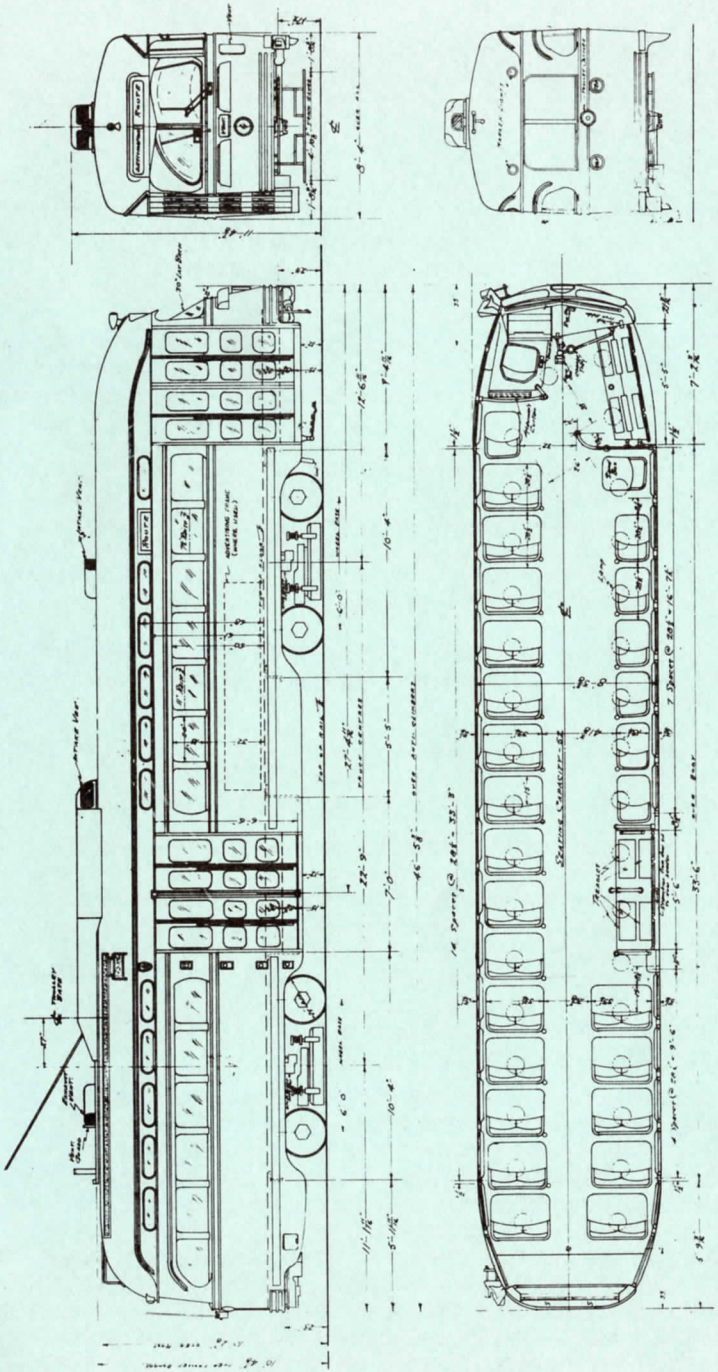
Performance: (No load weighing: based on 42,000 lb total weight)

Initial acceleration rate: 4.3 MPHPS

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: (over ¼ sec) 3 to 6 MPHPS² in acceleration
2.5 to 6 MPHPS² in service braking.



A-7 CLASS PCC CAR

## 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 featured 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.

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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-14) |
| 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 1980-1982, the last 17 operational cars being retired together on April 30, 1982.

Due to the foresight of the Ontario Electric Railway Historic 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 May 1, 1982 |
|---|---|---|---|---|
| 4000 — 4139 | A1 | CC & F'38 | New | (Last car '55) |
| 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 | 79 |
| 4400 — 4499 | A7 | CC & F '49 | New | 45 |
| 4500 — 4549 | A8 | CC & F '51 | New | 49* |
| 4550 — 4574 | A9 | St. LC '49 | Cincinatti '50 | (Last car '82) |
| 4575 — 4601 | A10 | St. LC '39-40 | Cincinatti '50 | (Last car '75) |
| 4625 — 4674 | A11 | Pullm '46 | Cleveland '52-53 | (Last car '82) |
| 4675 — 4699 | A12 | St. LC '47 | Cleveland '52 | (Last car '82) |
| 4700 — 4747 | A13 | Pullm '46-47 | Birmingham '52-53 | (Last car '82) |
| 4750 — 4779 | A14 | St. LC '46-47 | Kansas City '57 | (Last car '77) |

**** Includes non-revenue training car 4504***