

Research Enterprises Limited, REL, Canada

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Research Enterprises Limited, REL, was established as Crown Corporation in Toronto on 16 July 1940 and closed in 1946. Actually it was a production branch of Canadian National Research Council, born at the outbreak of the war in Europe as optics factory, capable to supply binoculars and gunsights to military, relying upon proven US technologies and machinery. More or less in the same days, British planned to establish in Canada strategic production plants which could easily interface with US markets and manufacturers.

The Tizard Mission in August 1940 opened new perspectives for REL. On one hand British were going to plan the production of many thousands ASV radar sets for US short-term needs, while unable to manufacture even the smaller quantities for their own needs. By the other side an optics factory, with its glass processing capabilities, was seen as ideally suited to manufacture the CRTs required by the bombing radar industry. Under the management of General Electric, REL opened a 500-people plant to produce cathode ray tubes. Another electronic factory was opened to built about 8.000 sets of ASV airborne radar sets. Other radar equipment, among which CHL sets for the Panama Canal region and GL MKIII fire directors, were also assembled by REL. About 7500 people were employed at the peak and external subcontractors were used whenever advantageous. With the exception of cathode ray tubes, the production of other vacuum tube was run outside by Rogers, Canadian Westinghouse, Canadian General Electric and Northern Electric or even by US related companies.

By the way Northern Electric, controlled by Bell Telephone and related to Western Electric, produced for REL magnetrons derived from the WE D-160052, the experimental code which had been assigned to the copies of the British E1189 brought to America by the Tizard Mission. Unstrapped REL types [3C](#) and [3D](#), equivalent to the British CV38 and NT98, are listed in the exhibits.

Probably due to the secret classification of the radar-related materials during the war, very few info can be found today about productions of REL tubes for radar industry. No documentation can be found, with exceptions for a few data sheets filed in the RMA archives, attached to the US registrations of nine proprietary tubes, including two CRTs, two video amplifiers, [6AJ7](#) and [6AK7](#), and the micropup power triode [4C29](#). Anyway no evidence exists that REL ever built the tubes it registered, other than some CRTs. Because of the rapidly increasing demand during the war, we must assume that REL badged tubes were fully processed up to the final testing and the packaging by external contractors themselves.

Most of REL tubes are copies of British types, but equivalences to their prototypes are not easily available. Usually they can be deduced by double or triple markings on the tubes themselves or on their boxes, if any. Only Ludwell Sibley gives a partial cross-reference in his 'Tube Lore'.

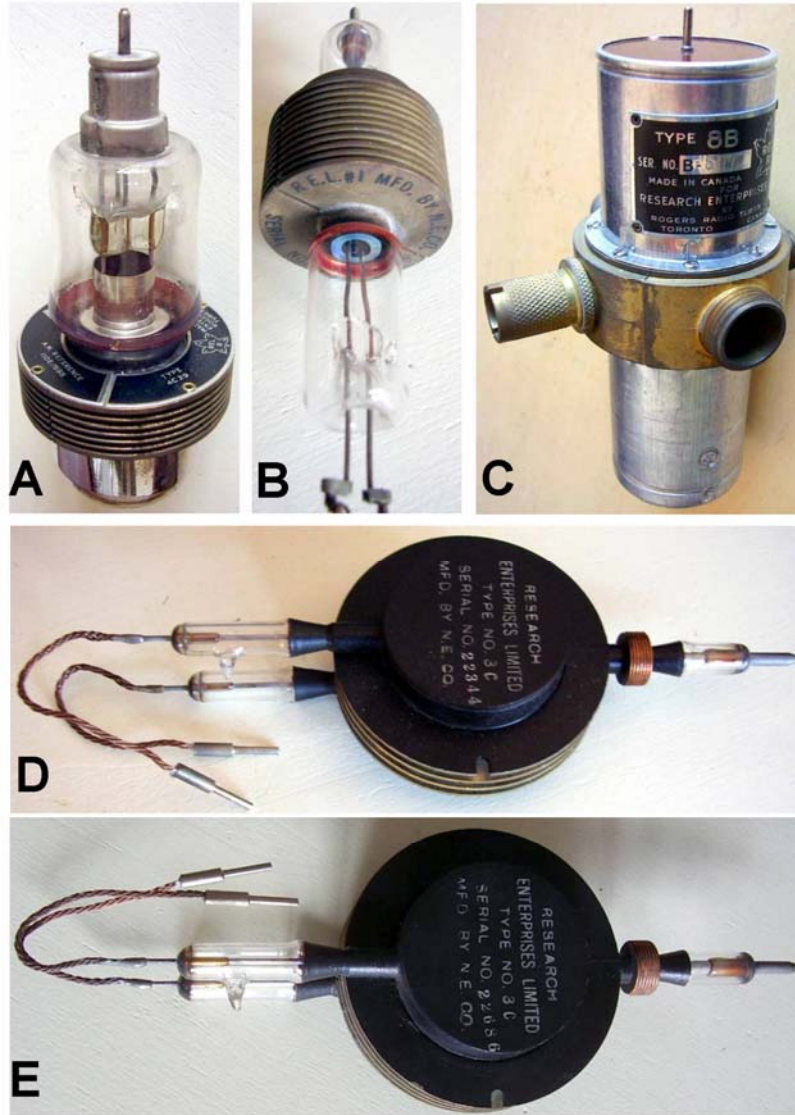


Fig. 1 - Samples of rare Canadian REL tubes:

- A - [4C29](#) was a micropup triode for pulsed operation designed by REL
- B - [REL 1](#) was made as direct replacement for British VT90.
- C - [8B](#) klystron looks to be a REL design derived from the British 'Sutton tube', similar to [CV35](#).
- D - [3C](#) was the Canadian equivalent of British CV38 magnetron, used in S-band airborne radars.
- E - [3D](#) was equivalent to British [NT98/CV1255](#), used in Type 271 naval radar.

Last edited on 20 February 2016 by Emilio Ciardiello

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