

## REL 8B - Early Canadian Klystron



Very few information on this Canadian klystron, also known as RT66. Sibley lists four frequency variants from 8A to 8D. Presumably two of them matched the frequency of [3C](#) and [3D](#) magnetrons, equivalent to British CV38 and [NT98](#). The shape of the two cavity terminating horns and the cup shaped reflector suggest that it was directly derived from the original British '[Sutton tube](#)'. See also draft at page 79 of *Metres to Microwaves*, Callick.

Manufactured by Rogers for Canadian REL. Almost certainly used as local oscillator in the 1941 production of GL 3 gun laying and maybe also in the RX/C naval radar sets designed by REL. The preliminary specs written in 1940 for GL 3 suggested the use of a Northern Electric E1189 magnetron in the transmitter and of components from Bell Lab., crystals and a 1020Y valve as local oscillator, in the receiver. Northern Electric supplied satisfactory samples of its E1189, known as [REL 3D](#), early in February 1941. Unfortunately Western Electric, even if already working with [linear klystron devices](#), was not ready to supply a suitable low-noise reflex klystron and its 707A appeared only at the end of 1941. Also improved British variants, as CV67 and CV35, were released by November 1941. Then REL asked Rogers to make improved copies of the only klystron available and certainly working at the time, the British [NR89 'Sutton tube'](#). Delivery of the device, identified as tube Type 8, started by April 1941. Some 660 units of GL IIIC sets were delivered to Britain from 1941 under the Lend and Lease Act. Not known the number of naval sets, RX/C and SS/2C, fitted with Type 8 local oscillator.

The electron gun was modified with a second grid, much likely to improve the beam focusing. The resonator was larger, supported by the external aluminum shell and fitted with a knurled tuning knob. Large 4-pin bayonet base and top cap.

Actually photos show samples of the frequency variant 8B.



In the above images, a close-up view of the irides inside the cavity, left, and two images from a disassembled unit. See also the images of the Sutton prototype. Refer to the [Sutton Early Prototype](#) to see electrode similarities.



Detailed views of the electron gun subassembly and of the cup-shaped reflector, very similar to those in the [Sutton tube](#). Below a partially disassembled 8B.

