



"BUZZ BOMB" JET KEEPS RAILS CLEAR

A refined version of the pulse-jet engine that powered the V-1 "Buzz Bomb" of World War II is serving as the heart of an experimental heater that National Research Council of Canada engineers hope will end the problem of railway track switch-failure due to ice and snow blockage.

Engineers at NRC's Low Temperature Laboratory are currently conducting field trials of a forced-convection thermal heater which has no moving parts. It employs a pulse-jet combustion burner as the primary nozzle of an air-injection pump. The heater is capable of delivering over 1,000 cubic feet a

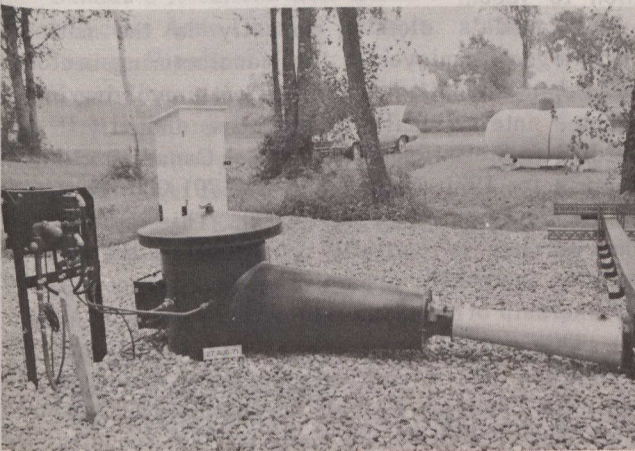
minute of air at 190 to 225 degrees Fahrenheit, with a fuel consumption of two gallons an hour of propane.

In the earlier and more leisurely days of Canadian railroading, the cleaning of switches was done by hand. Automation and the elimination of many divisional points in the 1950s drastically reduced the manpower supply along Canadian railway-lines. With the introduction of remotely-operated power switches and the idea of centralized traffic control, automatic protection of switches from snow and ice became essential. Various heating devices were put into service with indifferent success.

NRC CALLED UPON

In the 1960s it was found that thermal protective equipment was a mounting problem and Canada's railways turned to the National Research Council for assistance.

Development of the NRC pulse-jet heater began in the winter of 1966-67, when NRC made an initial study of available switch heaters and found none satisfactory. The most effective then available was an oil-fired hot-air forced-convection heater with an output of less than 200,000 British thermal units (BTU) an hour. The fuel pump, circulating fan, ignition transformer and control system required almost two kilowatts of electrical energy. Much of the railway track in Canada passes through thinly-populated areas, where the only power available is



Track switch heater undergoes endurance test at NRC's railway test laboratory near Ottawa's Uplands airport.