

IRAP aid for the 'Hooker'— Frink's new snow plow

Each year more than a billion tons of snow has to be plowed or blown off Canadian streets, roads and highways. And, according to a National Research Council of Canada study on snow clearing, the annual cost of maintaining men and machines for this purpose is in excess of one hundred million dollars.

North America's largest manufacturer of displacement snow plows is a group of subsidiaries of Canadian-owned Combined Engineered Products Ltd. of Toronto. The companies are Eastern Steel Products and Frink of Canada, both of Cambridge (formerly Preston) Ontario, and Frink Sno-Plows Incorporated of Clayton, New York. (Frink's founder, Karl Frink, is credited with inventing the first steel highway snow plow more than 50 years ago).

Despite its preeminence in the snow plow manufacturing field, it was not until 1969 that Frink of Canada established a research laboratory. That year it applied for and was granted an Industrial Research Assistance Program (IRAP) grant from the National Research Council of Canada to study the dynamics of snow removal. To 31 March, 1973, IRAP, whose purpose is to stimulate and promote industrial research in Canadian manufacturing companies, has provided approximately \$126,000 for support of the salaries of the research staff on the project, with all other costs of the project being borne by the company.

The result has been the creation of a three-man research team at Cambridge, headed by David M. Henry, an engineer with a background in stress mechanics brought in from outside the industry in order to provide a fresh look at traditional snow clearance techniques.

First fruit of their company's efforts went on sale early last winter. Dubbed the Frink "Hooker" because of its shape, it is described by its creators as the first scientifically-designed highway snow plow developed for North America. This is not quite the boast it might be, Mr. Henry assures, since research had been virtually nonexistent in an industry which has developed current techniques empirically, producing improvements in systems and equipment developed a generation or more ago.

The Hooker is intended for use as a high speed snow plow, high speed being considered as greater than 20 miles per hour. The benefits resulting from the design increase as speed increases and use at speeds of 40 miles per hour and above is possible. A number of machines have been sold to date and the company is satisfied that this is adequate at this introductory point. In high-speed snow plowing, the two factors which normally limit speed are the ability of the truck-installed power to overcome the snow resistance and the ability of the plow operator to safely control his vehicle.

The Hooker's moldboard is contoured so that the snow leaves from the end of the blade and is directed out to the side. This eliminates the problem of visibility found with conventional straight plows where the snow leaves from the top edge of the blade along a flow path passing directly in front of the vehicle.

With visibility improved the plow operator becomes capable of utilizing greater speeds. This created a need for improved performance. Snow flow studies showed that with a snow plow it was possible to attain two optimum conditions: maximum lateral casting distance with respect to speed and minimum power input required to produce the desired cast.

With a conventional blade, the snow leaves the top edge of

PARI aide Frink à construire son nouveau chasse-neige "Hooker"

Frink of Canada's new snow plow in operation. • Le nouveau chasse-neige de la société Frink au travail.

