



CANADIAN P & W PT6 POWERED Piasecki 16H begins flight tests with wings following completion of tests in pure helicopter configuration. The 16H combines the VTOL and hovering features of the helicopter with the longer range, higher speeds, lower operating costs of the fixed wing airplane.

CL-44 Sales?

OTTAWA—Defence Production Minister O'Hurley reported to the Commons Feb. 4 that CL-44 sales negotiations between Canadair and Pakistan International Airlines Corp. and Lufthansa are "proceeding satisfactorily" and that he hopes sales will be made.

Mr. O'Hurley noted that at Dec. 31, 1962, Export Credits Insurance Corp. had a liability of more than \$66 million on insurance policies issued to Canadair for previous CL-44 sales.

He also said his department is studying a proposal concerning continuation of CL-44 production.

However, the Government position seems to be that Canadair must complete sales of its present CL-44's before it will underwrite further production.

Rocket Program

WINNIPEG—A Canadian research rocket probe of the earth's atmosphere will be launched at Manitoba's northern Fort Churchill this spring using rockets manufactured in Winnipeg by Bristol Aero-Industries Ltd. and propelled by fuel made by Canadian Bristol Aerojet.

The firm finished a six-rocket experimental program in December and engineers and technicians are preparing for a May-June rocket launching program at Fort Churchill. The vehicles are members of the Black Brant family.

A \$2 million propellant plant now is being built near Stony Mountain, just north of Winnipeg, and should be open by April. Solid fuel will be put in the rockets there and then they will be shipped to the northern launching point.

The Black Brant sounding rockets carry recording instruments in nose cones which give details of the

earth's atmosphere-weather relationships, temperature, pressure and shape of the earth. They record meteor and solar particles information and space and inter-planetary data.

William N. Isberg, marketing engineer for the manufacturers, said the rockets climb to heights of between 100 and 800 miles carrying from 30 to 300 pounds of instruments. Ottawa is paying a third of the cost of the rockets with Canadian Bristol Aerojet and Bristol Aero-Industries sharing the balance.

The rockets have been tested at Wallops Island, just south of Virginia and the main firing range of the National Aeronautical and Space Administration. A 28-foot rocket costs \$25,000 and is a one-stage rocket. Nose cones, complete with instruments, cost from \$10,000 to \$30,000 and are not recovered.

From 20 to 30 engineers, draftsmen and technicians work on the Brants in Winnipeg. About 40 more personnel will be employed at the propellant plant.

Defence Contracts

OTTAWA—Canadair again led defence contractors in the 1961-62 fiscal year.

The public accounts show that Canadair was paid \$68,281,801 in 1961-62 compared with \$87,732,125 in 1960-61. Orenda Engines Ltd. again stood second with earnings of \$39,493,158, an increase of \$4,639,893 over the previous fiscal year.

Canadian Westinghouse was in third place with defence contract payments of \$16,642,385. It was followed closely by Imperial Oil with \$16,615,345.

Avro Aircraft, now deceased, the highest-earning defence contractor for years until the Arrow was killed in 1959, again dropped far down the

list. It had defence earnings of \$3,841,315 in 1961-62 compared with \$8,533,580 the previous year and \$95,870,173 in 1958-59.

Nine companies earned more than \$10 million in 1961-62 compared with eight in the previous year. Besides Canadair, Orenda, Westinghouse and Imperial Oil they were: Canadian Marconi, \$13,417,597; Lockheed, \$13,394,836; Canadian Vickers, \$12,064,739; Canadian Aviation Electronics, \$11,607,977; and Litton Systems Inc. \$10,677,914.

Space Program

OTTAWA — The Government has mapped out a space program for 1964-68 which will cost between \$20 million and \$25 million.

The most spectacular part of the program will be the launching of four more ionosphere sounding satellites in 1964-68 with the help of the U.S. National Aeronautics and Space Administration.

And, for industry, the most heartening factor in this announcement—by then Defence Minister Harkness on Jan. 11 — is that three of the satellites will be built by Canadian industry. The other, the first to be launched in late 1964 or early 1965, will be the spare satellite not required when the Alouette was successfully launched last Sept. 28. It will be equipped with new instruments.

The four satellites will cost approximately \$8 million. Mr. Harkness said it is hoped specifications for presentation to Canadian industry will be developed as soon as possible.

The \$8 million cost will be about the same as NASA will spend this year for construction near Ingonish, N.S., of a ground data-gathering station for the Nimbus meteorological satellite system.

Research Grants

OTTAWA—The Government has disclosed details of research grants made in the 1962-63 fiscal year by the DRB and NRC.

Total amount committed by DRB is \$5,030,140, considerably more than the original \$1.5 million provided for in the 1962-63 appropriations. Total amount committed up to Jan. 14, 1963, by NRC was \$837,222.

Included in the DRB defence industrial research grants were the following: Jarry Hydraulics Ltd., \$51,072 (welding research on high-strength steels); The de Havilland Aircraft of Canada Ltd., \$456,075 (STOL aircraft research); Aviation Electric Ltd., \$43,652 (wear and friction); Canadian Westinghouse Co. Ltd., \$175,000 (research on electroluminescence for display systems); Canadian Aviation Electronics Ltd. \$25,500 (feasibility study on an electrolytic integrator), \$122,000 (magnetic anomaly detection research); United Aircraft of Canada Ltd.,