



COMETS RETURN. Following modifications in the U.K., the RCAF's two Comets are back in service again. They are shown on arrival at Uplands RCAF Station, Ottawa. Their duties will include testing of North America's air defense system.

RCAF Comets Back in Service

The RCAF's Comet jet transports, in the UK for modifications for the last year, have returned to their home base at RCAF Station Uplands, outside Ottawa. The two aircraft were flown back by RCAF crews of 412 Transport Squadron, Uplands, via Iceland. Skippering the aircraft were F/L P. M. Lemieux, of Maniwaki, P.Q. and F/L W. B. Carrs, of Flin Flon, Man. The RCAF placed the Comets in service in June 1953. It was then the world's first air force to fly jet transports. Both saw continuous service with 412 Squadron

until being withdrawn from flying in January 1954. The modifications, costing \$400,000 for each aircraft, primarily involved re-inforcing of the airframe.

RCAF air and ground crews have been in the UK training on the maintenance and flying of the aircraft. The Comets will be flown by 412 Squadron on general passenger and transport work. They will also be used for exercising the air defence system simulating high-speed, high-altitude bomber runs. The Comets are powered by four Ghost "50" engines, each with 5000 lb thrust.

engineering team responsible for the Iroquois design, provided the following description of the Iroquois: A turbojet of advanced design, aimed at obtaining maximum thrust within minimum dimensions, and incorporating a simple mechanical layout. The design has exploited the use of the latest materials including titanium. It has ensured an engine of low weight and anticipated relatively low cost, measured in terms of dollars per pound of thrust.

The engine has the two spool type of compressor, which means it has two compressors allowing the air to be compressed in two separate steps. This provides an engine having great flexibility of operation over a wide range of speeds and altitudes, such as is required in modern supersonic military aircraft.

Each compressor is directly coupled to the turbine which drives it and each rotor operates at its own individual speed range. Governors are provided to separately limit the maximum speeds attainable by each compressor rotor system. The most modern form of combustion chamber is employed between the compressors and the turbines to heat the air. To keep the diameter of the combustion chamber within that of the compressors, velocities of the air flows have been increased greatly over that normally encountered in present turbojet engines.

The turbine blades or buckets are of hollow construction through which cooling air is passed. This allows higher temperatures to be generated in the combustion chamber thereby obtaining greater power. The engine has been designed with a close coupled afterburner which is a further design improvement aimed at weight saving. The afterburner has a hydraulically operated variable nozzle. This varies the final jet aperture and gives the best operating conditions with and without the afterburner in operation. The control system is fully automatic.

Iroquois For The U.S.

Crawford Gordon, Jr., president of A. V. Roe Canada Ltd. and chairman of the board of Orenda Engines Ltd., and Roy T. Hurley, chairman and president of Curtiss-Wright Corp. have confirmed that an agreement has been signed between the companies. This covers rights for the manufacture, sale and further development of Orenda's Iroquois engine in the U.S. The agreement runs for seven years and provides for the exchange of technical information between the companies. Mr. Gordon outlined these advantages in the agreement for Canada and for Orenda: Furtherance of the collaboration and co-ordination that exists between the two countries on defense projects. A saving of cost both to Canada and the U.S. through elimination of duplication of effort. And thirdly, by sharing costs and through technical liaison between the two companies, Canada and the U.S. will obtain higher performance engines in a shorter period of time.

For Curtiss-Wright, Mr. Hurley said

the arrangement made available to U.S. military forces a high mach number engine for all purposes three years ahead of schedules. He estimated it had reduced his firm's development budget by more than 50 percent.

W. R. McLachlan, president of Orenda Engines described the Iroquois as a "very advanced supersonic engine with a high thrust/weight ratio." He said the agreement was the first of its kind concluded by a Canadian aero engine or aircraft company.

Initially the agreement covers the present Iroquois, which is considered an outstanding engine because of its mechanical simplicity, low weight and high thrust output. It is anticipated that the two companies will collaborate in the development of further variants of the Iroquois. These will be suitable for the high speed, high altitude interceptors and bombers now on the drawing board, and for commercial applications.

Charles Grinyer, vice-president, Orenda Engines Ltd., and the head of the