

# CF-100 SIMULATION

The hood of the CF-100/4 slid back and the pilot and navigator emerged. The dark line of sweat smeared as the pilot removed his crash helmet and tossed his gloves into it. For the fourth time in the day he had purposely crashed a CF-100 fighter interceptor.

The two men, test engineers for Canadian Aviation Electronics, had been kept busy doing the improbable as they put the CAE Flight Simulator through its paces in the final stages of development.

To date, a total of over 450,000 man hours has been spent in developing a prototype flight simulator of the CF-100/4, under license from the Curtiss-Wright Corporation. At the same time 11 assembly line models have been started and await only the final approval of the prototype to be processed to completion.

Said to be one of the most intricate electronic devices yet produced by a Canadian company, the simulator will require a room approximately 40 ft by 50 ft. to house the actual CF-100 cockpit and the control console, together with the banks of steel cabinets containing the actuating devices. With this machine the engineers feel confident that they can duplicate with uncanny accuracy every instrument indication that can be had with corresponding circumstances in the actual flying aircraft. These impressions of actual flight have been made complete to the last detail, including the use of authentic sound effects.

The only sensation lacking is that

of acceleration in fast manoeuvres. This might have been provided as well had not the cost been prohibitive.

The new simulator is believed to be the first in the world to simulate successfully the three phases of air interception: search, intercept and attack. In addition, all actual flying conditions can be inflicted by the instructor at the console, from icing wings, and engine failure to any one of a number of crises which could face a pilot under actual operating conditions.

The RCAF has ordered 12 of the simulators to form a new stage in the training of all-weather jet crews. Similar equipment developed for other aircraft in the U.S. has proven to save up to 75% flying training time. The engineers working on the project have said that they feel confident that a pilot could step from a regular aircraft into the simulator and come out of it, in a few hours, capable of actually flying the CF-100. This might prove feasible, but one of the main purposes of the simulator is to familiarize aircrews with CF-100 procedures, routine and emergency. The pilot learns to react instinctively without the danger of damaging several aircraft and possibly killing himself in the process.

When the 12 machines are completed, reportedly the summer of 1956, they are scheduled for shipment to the operational defence stations of the RCAF. The first units will probably go to No. 3 All-Weather OTU at Cold Lake, Alberta.

pilots, guided missiles, airborne instrumentation and fire control computers. The Ordnance Division manufactures such customized weapons systems as turret controls, stabilized platforms, firing and arming systems, navigation systems, meteorological systems, coding systems, munitions, missile components and proximity and mechanical fuzes.

## 1956 Courier

A 1956 model of the Helio Courier, ten miles an hour faster with an increased range of 745 miles, has been announced by Fleet Manufacturing Limited, Fort Erie. The new model, incorporating a quieter and more luxuriously appointed cabin and numerous minor refinements, picked up the additional speed and range as a result of the redesigning of the windshield and removal of the rubber grommets around all the windows. The leading edge slats were also redesigned, giving a better aerodynamic flow.

At the same time company officials announced that production of the

Courier in Canada has been temporarily halted pending an extensive market research survey of both the civil and military potential. In the meantime, all models of the aircraft remain available through Fleet from the Helio Aircraft Corp., Norwood, Mass.

## Life Span Extended

The between-overhaul life of the Orenda 11 and 14 engines has been greatly increased since production first began according to W. R. McLachlan, general manager, Orenda Engines Ltd. Operational time has been increased by 100% on the Orenda 11, powerplant for the CF-100, and by 50% on the Orenda 14, for the Sabre 6.

The engine life, or the number of hours the engine is permitted to operate between overhauls, in this case is decided by the RCAF after taking into account the recommendations of the manufacturers and the performance records of the engines in service. The longer the engine life, the more useful an aircraft becomes since it is out of

service less frequently for engine changes.

"The aim, of course, is to raise the figure as high as possible," said W. R. McLachlan. "Thus the need for a program of continuous development based on engineering and production advances backed up by the operational experience such as the RCAF provides."

The difference in the increases, both engines being virtually the same except for different installations, was explained in terms of the aircraft they power. In the CF-100, its role as interceptor does not call for the same use of power the Sabre demands in its role as a fighter. The CF-100 spends more time at cruising speed, the Sabre more at all-out speed. As a result the Sabre's engine is overhauled more frequently than those in the CF-100. Operational figures for the above engines are of course closely cloaked in security regulations.

## Orenda Solo

The Orenda 11 turbojet engine was the solo Canadian performer at the first Gas Turbine Division conference of the American Society of Mechanical Engineers held recently in Washington, D.C. Produced by Pete Lambert and Stuart Givan, both display engine fitters at Orenda Engines Limited, the display was a full-scale working model with cutaway sections finished in brilliant colours identifying the various engine systems such as fuel, air and oil.

## Slight Increase

The consolidated net profit of Dominion Magnesium Limited and its wholly-owned subsidiaries amounted to \$1,340,435 as compared with \$1,338,633 in 1954, according to the recent report for 1955 to the Board of Directors and shareholders by R. J. Jowsey, President.

"The decreased aircraft program made it necessary to operate Light Alloys Limited on a one-shift basis instead of the previous two shifts. The volume of work was approximately one third of capacity, consequently earnings were greatly reduced. No immediate change is foreseen in the defence requirements," he went on to say, "therefore we are concentrating on the commercial field. The Korean war brought about almost total defence production in the foundry and a most active selling campaign will be required to regain the commercial tonnage we achieved prior