

AVRO BUILD-UP. Avro Aircraft this year installed a new 15,000-ton hydraulic rubber press as part of the build-up of facilities for production of the CF-105.

A. V. ROE CANADA LTD.

Since last year A. V. Roe Canada Ltd. has become one of the largest industrial complexes in Canadian industry as the parent company of five subsidiaries employing a total of almost 20,000 people engaged in aircraft, jet engine, automotive, rail equipment, and engineering manufacturing.

To further consolidate its position in Canada, the 10-year-old A. V. Roe Canada Ltd., a subsidiary of the British Hawker Siddeley Group, placed before Canadian investors some 500,000 common shares at \$16. The first such move for many years by a major Canadian aviation industry. It's significant that the offer was oversubscribed even before it went on the market. Such is the faith of Canadians in the aviation industry.

Crawford Gordon Jr. is president and general manager of the company.

Avro Aircraft Ltd.

Most of the plant's engineering and tooling staff has been engaged in preparation of the mock-up and tooling for the supersonic delta-wing CF-105, the first of which is scheduled for completion by mid-1957.

Toward this end 184,000 sq. ft. of floor space has been added as part of a \$5 million expansion program which has included the installation of such special equipment as a 15,000-ton hydraulic rubber press and large skin mill.

A wooden mock-up and metal mock-up of the CF-105 have been completed, many of the major components are well toward completion. The first few of the small batch of CF-105s ordered by the government

so far will be powered by two Pratt & Whitney J-75 engines each, until Orenda's new Iroquois engine has been fully flight tested and is in production.

Meanwhile production of the CF-100 Mark 5 is continuing on a limited monthly basis. This Mark 5, 50,000 feet plus high altitude version, features extended wing tips, modified tail plane and deletion of fuselage mounted rockets.

This aircraft is by no means at the end of its design potential. Further versions of the CF-100 are contemplated including a version armed with guided missiles, a version with Orenda engines with afterburner and possibly other modifications to increase altitude performance.

Three more CF-100 squadrons have been formed in Canada and four more are being formed for service with the RCAF's first Air Division. The first squadron of CF-100s destined for Europe is already in service there. The others will leave in 1957.

The company is still hopeful for foreign sales of the CF-100. Possible markets for the aircraft are Belgium and West Germany. Both countries have stated they would like the aircraft. It's known one of the major barriers to export of the aircraft from North America, is the Hughes fire-control system which comes under United States security regulations.

No mention of Avro is complete without reference to the now famed project "Y" V.T.O. aircraft which is being designed and developed by the company on a U.S.A.F. contract. All that can be said is that the development project is proceeding with continued U. S. support.

President and executive head of the company is F. T. Smye,

Orenda Engines Ltd.

The company's big news of the year was the successful completion of the new 20,000 plus P.S.-13 Iroquois jet engine. The first one completed its 50-hour flight test successfully this past summer. This major hurdle passed, it will be flight-tested late this year when the specially modified B-47 is available.

While no production plans for the engine have been announced, it's understood that the engine, if successful, following air trials, will power the new Avro Aircraft, CF-105 supersonic interceptor.

It's not expected that Iroquois production rate will ever reach the 100 engine per month rate of the Orendas (over 3,000 of these have now been produced), but hopes are high that this engine will be produced both for domestic consumption and for export. Even more important is the strong possibility that the engine may be produced under license by a U. S. manufacturer.

Meanwhile, production of Orenda jet engines is still continuing at a very low rate as well as production of jet engines parts.

Walter R. McLachlan is president and executive head of the company.

Canadian Steel Improvement Ltd.

This special alloy die-casting foundry and forging plant has quietly crept ahead to a position of leadership in North America in certain titanium work.

Within the last year, the plant area has almost doubled to 200,000 sq. ft. with a total of close to 400 employees.

Much of the titanium forging work for the new Orenda Engine's Iroquois engine has been done by the company. This work plus a reputation it has built up over the past few years for special alloy jet engine blade forgings has resulted in extensive work for major U. S. aircraft companies in titanium.

Vice-president and executive head of the company is J. A. Wellings.

Canadian Car and Foundry Co.

Slightly over a year ago A. V. Roe (Canada) Ltd. acquired Can Car which is engaged in both aviation and ground transportation as well as some heavy engineering.

Can Car's aircraft division at Fort William is presently engaged in: the production of the complex wing of the Grumman CS2F-1 under subcontract to de Havilland; component manufacturer of wings and tail surfaces on the DH Otter also under sub-contract to de Havilland; tooling for the CF-105;

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production of Harvard spares. The aircraft division holds world sales rights excluding U. S. A. for Harvards (T-6) and spares — this has resulted in extensive export work.

A. V. Roe's acquisition of the company has resulted in increased work for its railroad and freight car division in Montreal, the taking on of truck work, continued progress in the production of buses.

Vice - president, manufacturing, automotive and aircraft divisions is R. E. Henderson.

BRISTOL AEROPLANE CO. OF CANADA (1956) LTD.

This is the parent company of three operating subsidiaries in Montreal, Winnipeg and Vancouver as well as the parent company of a fourth Mexican subsidiary formed this year, Bristol De Mexico, S.A. de C.V. This Mexican company will operate an engine overhaul base at Mexico City Airport.

R. J. Reynolds is president of the parent company and of the four subsidiaries. Offices are in Montreal.

Bristol Aero Engines Ltd.

The company continues to service and overhaul engines and power plants for military and civilian operators.

Major work of the Montreal plant includes Wright R-3350 turbo compound and R-1820 engines and on military and civil Rolls-Royce Merlins.

Vice-president and executive head of the Montreal plant is A/V/M A. L. James.

Bristol Aircraft (Western) Ltd.

This is now the Canadian Bristol Company's largest plant operation in the country. It was formerly MacDonald Bros. Aircraft Ltd. from whom Bristol purchased it outright.

While Bristol has continued to expand the overhaul and repair facilities and contracts, considerable preparations have been made for a helicopter design team to begin work at the Winnipeg plant in connection with a Canadian Navy requirement for a large number of anti-submarines helicopters.

The filling of this Canadian Navy requirement has not been undertaken nor has any decision yet been made as to the final design. It's understood that Bristol had envisaged a jet-powered anti-submarine version of the Bristol 191 twin-rotor helicopter.

The company's first modification work — which involved some engineering — was on 50 CF-100 Mark 3s (the first ones to be produced in

quantity) to two-place CF-100 trainers. This job has now been completed as has the conversion of a number of B-25s to light bombers, also for the RCAF.

New overhaul repair project recently begun includes a (CAIR) Calendar Aircraft and Inspection Repair program on C-45s and other RCAF aircraft. A new contract is the overhaul on the same CAIR basis of all CF-100 aircraft stationed in the west.

On the manufacturing side the company has made a name for itself by outstanding seam and spot welding work in the manufacture of jet engine tail cones and pipes for the Orenda Engine. The firm has also been experimenting with welding of titanium (possibly as a prelude to component manufacture for the Iroquois engine).

Other subcontract manufacturing has been: engine cells and other components for the Grumman CS2F-1 being built at de Havilland in Toronto; the manufacture of Edo floats under license in Canada for a variety of aircraft.

Vice-president and executive head of the company is W. S. Haggett.

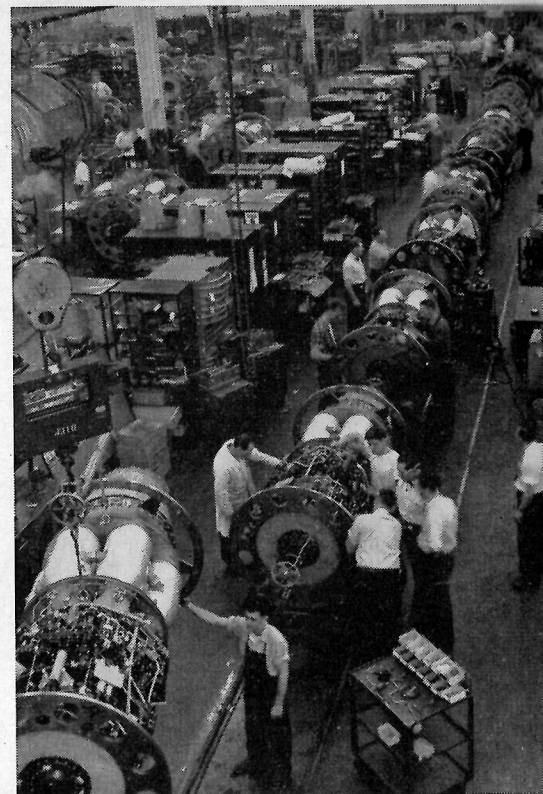
Canadair Ltd.

Big news this year for this Canadian subsidiary of the General Dynamics Corp. of the U. S., has been export orders for Sabre aircraft for the Governments of Colombia (6) and South Africa (34) as well as an order from the Canadian Government for 75 Sabres for West Germany. The company is hopeful of continuing export sales of the Sabres.

On the manufacturing side, while the production of Sabres and T-33 jet trainers has dwindled to a few a month, in another section of the plant Canada's largest aircraft is being built. The company now has an order for 25 of these CL-28 Maritime reconnaissance aircraft (an over 60% re-engineered version of the Bristol Britannia).

An order for the military transport version of the CL-28 known as the CL-44 is expected to be announced by the RCAF in the near future. This aircraft will be very similar to the Bristol Britannia is that it will be fully pressurized and be powered by turbo-prop engines (the choice of the actual engines has not yet been made).

Another new development during the year has been the formation of a General Atomic Division of the company to design, construct and test a nuclear-research test reactor for Atomic Energy of Canada Ltd., marking the company's entrance into the field of atomic energy.



ORENDA LINE. Orenda Engines Ltd. at Malton is working towards the day when production lines like these will be turning out the new PS-13 Iroquois engines, said to be one of the most powerful plants in the world.

To keep its production shops busy the company has been successful in getting a sizeable order from the Republic Aircraft Corp. in the United States for the fabrication of tooling for the F-105.

Other sub-contract work over the past year has been: construction of rear fuselages for the Grumman CS2F-1 being built at de Havilland; the manufacture of wing-skins for Avro aircraft's new CF-105 (until new skin milling tools become operational at the Avro plant).

In the guided missile field Canadair was responsible for the manufacture of air frames for a number of the Velvet Glove air-to-air missiles which were produced in Canada on an experimental basis. As a result it is expected that the company will participate in the future production of the Sparrow 2 air-to-air missile which is to be undertaken in Canada in the future.

A company-designed project which shows ever prospect of eventually seeing the light of day is the design for an ab initio jet trainer for the RCAF, the CL-41. However, no government decision is expected on this project for some time yet.

The executive head of the company is J. E. Notman, president.