THE INDUSTRY

First CS2F-1 Flies

The first Canadian-built CS2F-1 was flown by de Havilland Canada test pilots during the first week of June, according to an announcement from de Havilland Aircraft of Canada Ltd.

While production of the new aircraft is well ahead of schedule, with two aircraft due for delivery to the RCN in September, there are no contemplated changes in the delivery dates.

De Havilland was designated the prime contractor on the CS2F-1 program early in 1954 with an initial order for 26 aircraft. This number was increased to 42 in January of 1955, and in March of this year the figure was raised to 66. Orders are also in hand for the provision of spares for 100 aircraft. This figure of 100 aircraft has been tentatively quoted as the total requirement by the RCN, though additional orders for aircraft for NATO are a possibility.

The CS2F-1 has a range of 1,000 miles or 8 hours endurance, with a search speed of 130 knots. Landing speed is 75 knots; the take-off run is slightly over 300 feet. Included in the electronic gear will be radar, electronic counter measure, magnetic airborne detector (MAD), searchlight, directional equipment, communications equipment, automatic pilot, sonobuoys, and automatic navigation equipment. The radar scanner is housed in a retractible "dustbin" in the rear fuselage. The armament will consist of 2,400 pounds of rockets, bombs, depth charges or torpedoes.

CF-100 Mark 6

Avro Aircraft Ltd., is currently developing a Mark 6 version of the CF-100 which will have increased engine power and guided missile armament, according to Fred T. Smye, vice president & general manager. It is understood the new version of the all-weather interceptor will employ an afterburner to boost the present power of its Orenda 11 turbojets. The extra power will be required to offset the drag of the Sparrow air-to-air guided missiles.

Other CF-100 news is that a substantial modification program will begin this autumn to convert a number of Mark 4 aircraft to Mark 5's, and later, Mark 5's to Mark 6's. The company is also hopeful of arranging foreign sales for the CF-100.

Evaluation Trials

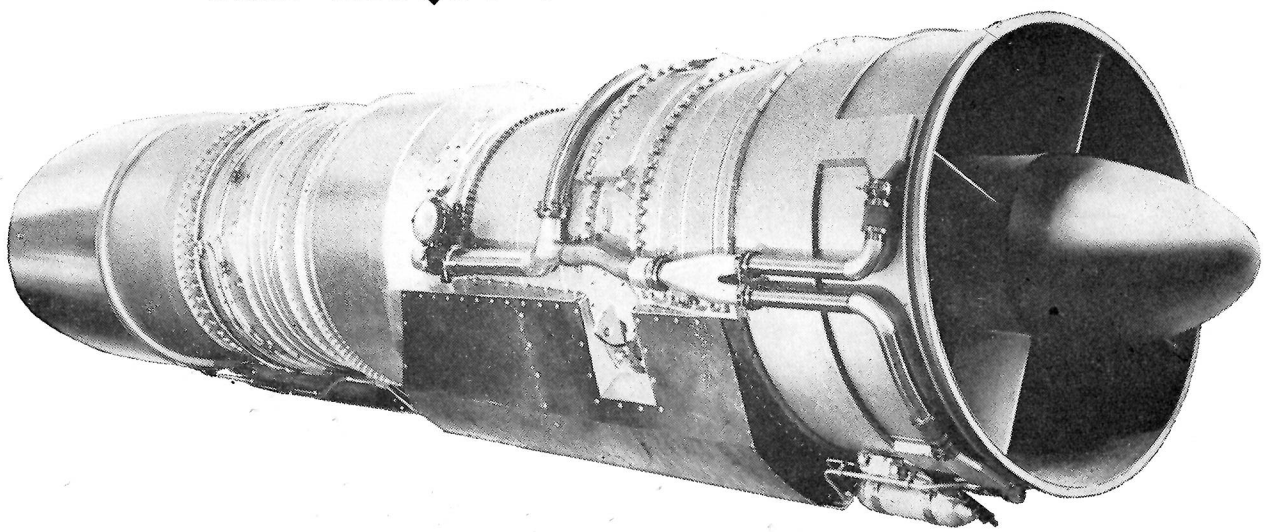
The Canadian Army ran a series of evaluation trials on the Fleet Courier during recent exercises at Camp Gagetown, N.B., according to Fleet Manufacturing Ltd. The aircraft's wide speed range (from some 30 mph to approximately 157 mph), low noise level, and short take-off and landing characteristics have made it a contender in the Army's search for a new liaison airplane.

The tests, under actual battle conditions, included observation missions, wire laying and communications assignments, litter evacuations and command transport jobs. The first of these tests were performed during the week of July 4-11, with additional exercises scheduled at Wainwright, Alta., during the period July 23 to August 3.

CL-28's Ordered

An order for additional numbers of CL-28 maritime reconnaissance aircraft for the RCAF has been awarded to

THE IROQUOIS: HEAP BIG ENGINE



The Orenda PS-13 has been named the "Iroquois", it has been announced by Orenda Engines Ltd. The big new turbojet, shown in the first picture release above in mock-up form (no photos of the actual engine have yet been released for publication), recently successfully passed the U.S. 50-hr. type test.

In announcing the decision to name the PS-13 after the famous Indian warrior tribe, Orenda Vice President & General Manager Walter R. McLachlan said the christening meant that this engine . . . "has reached a stage of maturity at which the words 'project study' no longer apply."

Mr. McLachlan said that when the directors decided to pick a name for the engine from among those of Indian tribes and nations who once roamed Canada, Iroquois seemed the natural choice. The company name, Orenda, is that of an Iroquois god regarded by that nation as "source of all power".

The Iroquois, which is to power the Avro Aircraft CF-105 supersonic delta-wing interceptor, is to be flight-tested in a USAF B-47 bomber, which has been loaned to the RCAF for that purpose. The B-47 is currently at the Montreal plant of Canadair Ltd., where an engine mounting is being installed at the side of the rear fuselage.

Design thrust of the Iroquois is reported to be about 18-20,000 lb.

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RUNNING UP: Members of the Engineering Institute of Canada watch a run-up of the CL-28 MR Britannia's powerplant on the special test rig which Canadair engineers developed for this installation (see "Aircraft", May, 1956). Earlier photographs appearing in this publication showed the engine uncowled. Main component of the powerplant is of course, a Wright R-3350 Turbo-Compound 18, rated at 3,700 hp.

Canadair Ltd. by the DDP, according to a recent announcement by the company.

The initial contract for 13 CL-28's was let to Canadair in February, 1954, and it was understood that other contracts were to follow, each of these to cover, in most cases, a block of 12 aircraft. If this procedure has been followed, then it is thought that all of the 50 aircraft to be built for the RCAF are now on firm order.

Estimated value of the aggregate CL-28 orders is $185,000,000. The first machine is scheduled for delivery to the RCAF early in 1957.

Layoff at Orenda

Production cutbacks from 100 Orenda engines a month, during the Korean War, to less than 50 a month at present, have necessitated the layoff of a further 350 workers at the Orenda Engines Ltd., Malton, Ontario, according to a recent statement by Walter R. McLachlan, vice president & general manager.

According to the DDP, production of the Orenda is to be cut even below the current rate of less than 50 per month. The additional cuts referred to by the DDP are to be made on a sliding scale at various times during the next year.

In explaining the layoff arrangements to the employees, Mr. McLachlan said that . . . "steps already taken have succeeded in reducing to some extent the impact of the lowered production rate. These include an increase in the schedules of sheet metal, repair, and overhaul work, also the addition of a third shift in the experimental plant. Other urgent efforts to reduce the effect of the production decreases are continuing."

To date more than 3,000 Orenda engines have been produced for the RCAF's CF-100 and the F-86 Sabre aircraft. Orders have also been filled for the South African and Colombian governments, both of which have acquired Canadair Sabres.

Meanwhile, the development work on Orenda's Iroquois moves into higher gear.

Avro Layoff

An estimated total of 500 employees are expected to be laid off by Avro Aircraft Ltd. as a result of a new Government-ordered cut-back in the rate of production of the CF-100. However, this latest stretch-out in production will not affect the total number of CF-100's to be produced for the RCAF, according to F. T. Smye, Avro Aircraft vice-president and general manager.

This latest reduction in Avro Aircraft employment is the third since January of 1955.

At one time, production of CF-100's reached a peak of 25 per month, but the stretch-outs of 1955 reduced this to about ten. The new rate of production has not been announced.

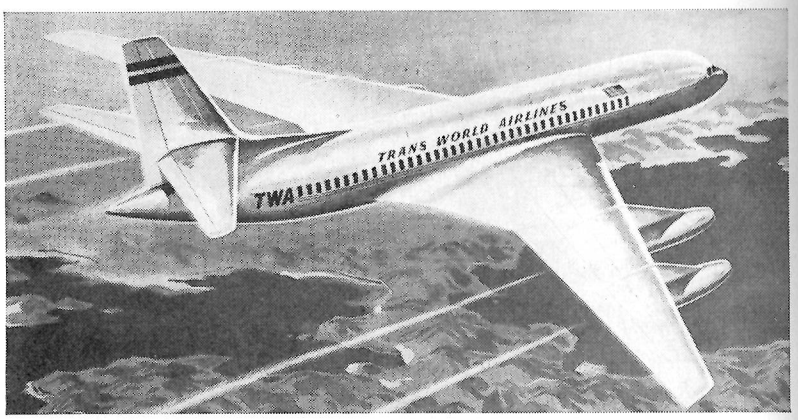
USN Orders Otters

The U.S. Navy has ordered nine additional Otters from The de Havilland Aircraft of Canada, Ltd. These will supplement the four Otters acquired last year for the Antarctic expedition, "Operation Deep Freeze", which comprised a preliminary phase of the U.S. contribution to the International Geophysical Year.

Australia and New Zealand are using Beavers for their preliminary survey operations in the Antarctic.

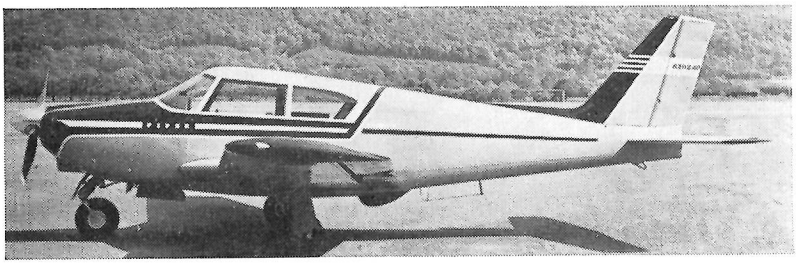
Maintenance Trainer

A $650,000 contract for the design and manufacture of a maintenance trainer for the RCN, has been awarded to The de Havilland Aircraft of



GOLDEN ARROW: Scheduled for delivery to TWA early in 1959, the Convair Golden Arrow medium range jet transport (above), will have a cruising speed of 609 mph and will be powered by four GE J-79/CJ-805 turbojets of approximately 15,000 lb. th. each. The Golden Arrow is ostensibly almost identical to the Skylark 600 announced earlier. Horizontal stabilizer is mounted on the fuselage of the Skylark; Golden Arrow is distinguished by its gold finish.

FIRST FLIGHT: The prototype of Piper's new four-place all-metal "high performance business aircraft, the "Comanche", had completed 10 hours flight testing by the end of May. The initial flight tests, using a 180 hp Lycoming engine, indicated that the aircraft equals or exceeds design performance in all respects, according to the manufacturer. Production tooling is underway and deliveries are expected to begin early in 1957. Final choice of powerplant is still to be made.



Canada by the Dept. of Defence Production. The trainer, to be used in the training of naval ground personnel, will consist of a series of static panels simulating actual cockpit controls as well as the basic operations of aircraft hydraulic and electrical systems.

As prime contractor, de Havilland Canada is doing the design and engineering on the project and sub-contracting to Fleet Manufacturing Ltd., for the production and assembly of the panels.

USN Inspects CL-28

A group of 15 U.S. Navy officers, from the USN air development centre at Johnsville, Pa., visited the Canadair during June to study the CL-28 in conference with RCAF officers and company engineers.

CF-105 Highlights

A few design highlights of the new Avro CF-105 all-weather fighter, and its two Orenda Iroquois turbojets, were given by Avro Aircraft President Crawford Gordon, Jr., when he addressed the RCAF Association in Windsor, Ont., recently.

The two Iroquois engines, which Mr. Gordon described as developing almost twice as much power as is needed to drive the Queen Mary, will require 24 gallons of fuel just for starting. He said that fuel to last the average motorist six years will be burned by the CF-105 in a normal 40-minute supersonic mission.

The aircraft will be supersonic in climb. To carry the extreme loads that will be encountered in supersonic flights the CF-105's aerodynamically thin wing is capable of supporting the equivalent of 300 tons. In this connection special hydraulic control actuators have been developed, and these were colorfully described as being powerful enough to move an elephant on the end of a 15-foot beam through 40 degrees every second.

To overcome friction heat, laminated glass one inch thick will be used for the windshield. In all, 60,000 feet of electrical wiring is needed for each aircraft.

The air conditioning system which had been designed to compensate for the surface friction heat, would change 36,000 cu. ft. of air a minute.

Vickers Ltd. Returns

A controlling interest in Canadian Vickers Ltd., Montreal, has been regained by the U.K.'s mighty Vickers Ltd. Vickers Ltd. originally founded the Canadian company in 1911 and operated it until 1927, when control was acquired by Canadian interests. The aircraft division of Canadian Vickers Ltd. was formed in 1923 and acquired by Canadair Ltd., in 1944. At that time Canadair was a Crown Company.

The British engineering, ship-building, and aircraft manufacturing firm stated that at least 45% of the shares of Canadian Vickers Ltd. would remain in Canadian hands. Officials pointed out that the "outstanding reputation of Canadian Vickers Ltd. as general engineers, shipbuilders and ship repairers can now be reinforced by the technical knowledge and experience of the whole of the companies of the Vickers group, covering engineering, shipbuilding, steel and aircraft."

Although the Vickers Viscount aircraft is well known in Canada, the company has no plans of re-entering the commercial aviation field through their Canadian holdings, it was said.

Good Market

Canadians were the best customers for light aircraft exports from the U.S. during May, according to a report from the Aircraft Industries Association of America. Of the total dollar value—$1,052,276 — of export aircraft under 6,000 pounds, Canadian purchases accounted for $311,423, representing 25 airplanes. Companies reporting exports included Aero Design & Engineering Co., Beech Aircraft Corp., Cessna Aircraft Co., Piper Aircraft Corp., and Taylorcraft Inc.

Allison 501 in Electras

The 501 turboprop engine manufactured by the Allison Division of General Motors has been ordered as the power plant for a total of 116 Lockheed Electra airliners. The model 501 is a commercial adaptation of the Allison T-56 which is being used in the USAF's Lockheed C-130.

The introduction of the 501 marks

the entry of the Allison Division of General Motors into commercial aviation. In announcing this, GM President, Harlow H. Curtice, pledged the full backing and support of his entire organization.

The Electra will be powered by four 501 engines, each of which produces 3,750 hp for a power-to-weight ratio of 2.3 hp per pound. This is more than double the power-to-weight ratio of engines now in commercial air service, according to GM. A distinguishing feature of the Allison 501 is the relatively small frontal area, said to be no broader than the propeller spinner.

SIX SABRE SIXES: Luis Cuadros (in front of roundel in civilian clothes), Colombian consul in Montreal, was among the officials who inspected the six Sabre 6's built by Canadair for delivery to the Colombian Air Force. With Sr. Cuadros are, L to R, 2nd Lt. Oscar Acero M. and Capt. Rafael Millan V., who were among seven Colombian pilots trained on Sabres by Canadair. At right is 2nd Lt. Dario S. Martinez, chief of nine CAF technicians who took a Sabre maintenance course.

U.K. Exports

Canada has purchased a total of $1,840,079 in aircraft and parts from the U.K. during the first quarter of 1956, according to a report from the SBAC. In this period the U.K. exported aviation products with a total value of $100,144,350.

Expansion

Canada Wire & Cable Co., Ltd., has announced the near completion of an addition doubling the size of its Vancouver plant. At the present time the company is in the midst of a $13,000,000 expansion and decentralization program.

Canada Wire operates plants in Smiths Falls, Ontario; Vancouver, B.C.; Fort Garry, Manitoba; and has purchased the land for a new factory at Simcoe, Ontario. The head office and main plant of the company is located in Leaside, Ontario.

Aircraft & Parts

The value of products turned out by Canada's aircraft and parts industry during 1954 amounted to $343,010,830, a decline of 14% from the $398,744,272 reported in 1953, according to the Dominion Bureau of Statistics. At the same time, materials costs increased by $23,136,000 over the previous year for a total expenditure of $158,893,485.

The number of manufacturers increased from 43 to 47 although the national employment figure dropped from 38,048 to 35,095. The four major assembly companies, de Havilland, Canadair, Canadian Car & Foundry, and A. V. Roe Canada Ltd., employed 26,664 of the 35,095 employees. In all, wages amounted to $135,863,490 for 1954, a drop of $6,513,000.

In giving an industrial breakdown, the report showed a total value of $186,934,000 for aircraft completed as compared to $174,847,000 in the preceding year; aircraft not finished, $35,724,000 ($74,314,000); repairs $31,072,000 ($28,257,000); parts made, including value of work done on developing aircraft and engines, $167,353,000 ($186,596,000).

Contracts Awarded

Contractors awarded business in excess of $10,000 by the Department of Defence Production during the period April 16 to May 15, 1956, include the following. The list does not include orders placed by the Department outside Canada, or with other agencies, and amendments or orders placed earlier—nor do orders classified as "secret" appear here.

(Names appearing in bold face type are current *Aircraft* advertisers)

Aircraft Industries of Canada Ltd., St. Johns, Que., $510,000 for repairs and overhaul or airframe spares during period April 1/56 to March 31/57.

Bayly Engineering Ltd., Ajax, Ont. $28,000 for repair and modification of ground and airborne electronic equipment during period April 1/56 to March 31/57.

B. C.—Yukon Air Service Ltd., Watson Lake, Y. T., $16,095 for charter of aircraft.

Canadair Ltd., Montreal $44,751, for aircraft spares.

Canadair Ltd., Montreal, $12,847, for aircraft electrical equipment.

Canadair Ltd., Montreal, $17,279, for spares for aircraft servicing equipment

Canadian Aviation Electronics Ltd., Montreal, $1,290,000 for repair and modification of ground and airborne electronic equipment during period April /56 to March 31/57.

Canadian Helicopters (1954) Ltd., Ottawa, $32,080 for charter of helicopter.

Cossor (Canada) Ltd., Halifax, $90,000 for repair and modification of ground and airborne electronic equipment during period April 1/56 to March 31/57.

The deHavilland Aircraft of Canada Ltd. Toronto, $650,000, for design and manufacture of maintenance trainer.

Dorval Air Transport Ltd., Dorval, Que. $79,091, for charter of aircraft.
during period April 1/56 to March 31/57.

Field Aviation Co. Ltd., Oshawa, Ont., $170,204, for parachute assemblies.

B. F. Goodrich Canada Ltd., Kitchener, Ont., $23,930, for aircraft spares.

Goodyear Tire & Rubber Co. of Canada Ltd., Toronto, $45,306, for aircraft spares.

Hancock Tire Tread Ltd., Toronto, $75,000, for re-treading of aircraft tires during period April 1/56 to March 31/57.

La Have Equipment Ltd., Bridgewater, N.S., $115,575 for aircraft crash cranes.

Northern Electric Co. Ltd., Ottawa, $75,411, for radar equipment.

Northwest Industries Ltd., Edmonton, $111,000, for repair and modification of ground and airborne electronic equipment during period April 1/56 to March 31/57.

P.S.C. Applied Research Ltd., Toronto, $110,648, for aircraft navigational equipment.

Spartan Air Services Ltd., Ottawa, $736,000 for mapping survey.

Sperry Gyroscope Co. of Canada Ltd., Montreal, $152,381, for aircraft instruments.

Sperry Gyroscope Co. of Canada Ltd., Montreal, $11,259 for electronic modification kits.

Stark Electronic Instruments Ltd., Ajax, Ont., $640,000 for repair and modification of ground and airborne electronic equipment during period April 1/56 to March 31/57.

Wheeler Airlines Ltd. Quebec, Que. $91,032 for charter of aircraft.

Abercorn Aero Ltd., Montreal, $150,000 for repair and overhaul of air/sea rescue material during period April 1/56 to March 31/57.

Aircraft Industries of Canada Ltd., St. Johns, Que., $200,000 for repair and modification of airframes and airframe components during period April 1/56 to March 31/57.

Aviation Electric Ltd., Montreal, $47,594,