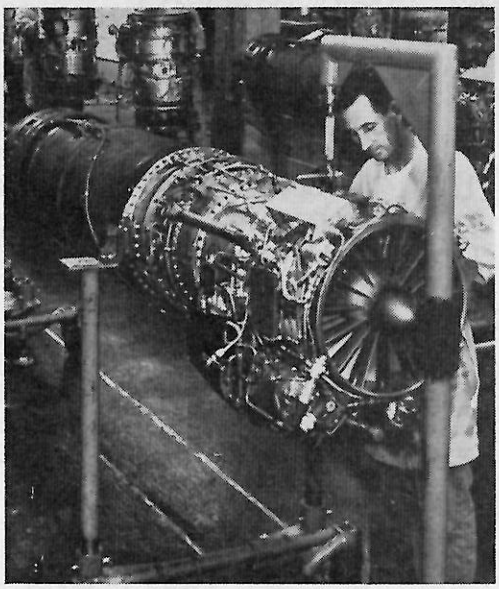
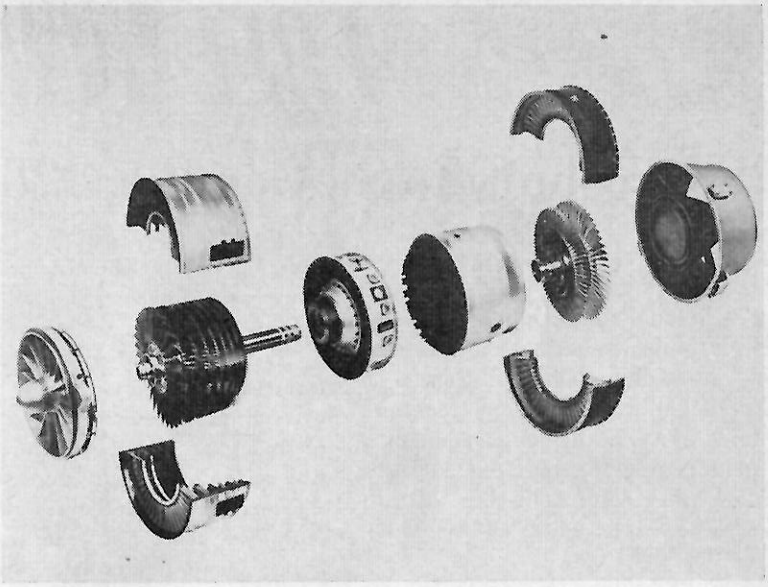




L, GE's J85 production line at Lynn, Mass.; R. exploded view of J85, blood brother to CJ610 chosen for CL-41.

GE engine chosen as CL-41 powerplant

THE GENERAL Electric CJ610-1B turbojet engine has been selected to power production versions of the RCAF's new CL-41 jet trainer, it was announced at April's end by Defence Production Minister O'Hurley. A contract to produce the engine in Canada under license from Canadian General Electric Co. Ltd. has been awarded to Orenda Engines Div., Hawker Siddeley Canada Ltd.

Dollar value of the engine contract and the number of engines involved, have not been announced. However, it is estimated that about 240 engines would be required. The published price quoted for a CJ610 in the U.S. is about $45,000. Simple multiplication indicates that the value of the CL-41 powerplant contract will be in the over-$10-million range.

The first Orenda-built engine is scheduled for delivery in just about one year.

First Place: The CJ610-1B, a commercial version of the J85-GE-7, received the nod over its most prominent contender, the Pratt & Whitney JT-12, which powers the two CL-41 prototypes. The production contract was awarded on a competitive basis. There is also evidence to suggest that the CJ610 bid carried with it the greatest potential for increased production sharing.

On April 26, the day following the DDP's announcement of the powerplant selection, General Electric's Small Aircraft Engine Dept., Lynn, Mass., held a day-long materials symposium in Montreal, at which Canadian manufacturers were urged to compete for about $10 million dollars worth of contracts to supply parts that go into turbine engines made in the U.S. by GE. The GE Small Aircraft Engine Dept. is responsible for such turbine powerplants as the J85 turbojet and its commercial variants, and the T58 and T64 turboprop/turboshaft engines.

The switch in engines will require a number of relatively minor modifications, though these should not affect the aerodynamic shape or exterior appearance of the CL-41. Some additional flight testing will be necessary. The main effect of the change is expected to be a delay in the program amounting to about four months.

Room to Spare: The modification program necessitated by the new engine will be relatively slight because when Canadair originally laid down the CL-41, the airframe envelope was designed to permit the widest possible choice of engines. Canadair's own first choice was, in fact, the Fairchild J83, which was cancelled by the USAF just about the time that Canadair was ready to instal the first engine in the first CL-41 prototype. It was at this time that the JT-12 came into the picture.

The performance of the CL-41 is not expected to be affected very much by the engine change. Indications are that any performance variations will probably be in the nature of a slight improvement. The CJ610 is about 80 lbs. lighter than the JT12 and has a better power/weight ratio. On the average, the advantages of the two engines, insofar as their application to the CL-41 is concerned, balance out quite evenly.

The CJ610-1B is rated at 2650 lb./th. The JT12 used in the CL-41 prototype is rated at 2900 lb./th. but in this installation has been derated to 2400 lb.

The CJ610 is a member of a well-proven family of turbojet engines which, besides the J85, also includes the turbofan CF700. The J85 is the powerplant used in the twin-engined Northrop T-38 Talon two-place supersonic pilot trainer and in the similar N-156F light fighter. The N-156 is essentially the same airplane as the T-38 except, of course, that it requires a crew of one only and can carry a variety of armament.

Production Sharing: The N-156 has recently been selected by the USAF as a replacement under the U.S. Mutual Assistance Program for

the Republic F-84's still in wide service with allied air forces in Europe. It is understood that the number of aircraft involved is in the order of 300-400. When this is added to the estimated long term requirement of the USAF for some 750 T-38's, production sharing potential inherent in the J85 program becomes obvious.

Because of its close relationship to the J85, the selection of the CJ610 also improves the RCAF's chances of getting the T-38 Talon, an airplane in which it has been interested for some time as the logical training stepping stone between the CL-41 and the CF-104 and/or the CF-101.

The CJ610, which was certificated by the FAA in December of last year, is 17.7 in. in diameter and has a length of 39.7 in. It weighs 355 lbs.

The new CL-41 powerplant incorporates an eight-stage axial-flow compressor driven by a two-stage reaction turbine. It has an annular combustion section; a fixed-area, concentric exhaust section, not including the tailpipe and jet nozzle.

From a maintenance point of view, GE says the CJ610's horizontally split turbine and compressor casings permit quick inspection and repair. Subassemblies are compact; accessories are clustered to provide maximum accessibility. Turbine and maintenance may be conducted without engine teardown. When disassembly is called for, the engine may be dismantled in either a horizontal or vertical position.

Three mounting points are provided for supporting the engine in the airframe. One main mount is found on each side of the main frame at the horizontal centreline and one stabilizing mount integral with the inlet cowl forward support ring bolted to the front frame.

Civil applications of the CJ610 to date include the new Aero Commander Model 1121 executive jet, and the Piaggio-Douglas PD-808, also for executive use. Neither of these aircraft is yet in series production, so the CL-41 constitutes the first major use of this particular engine type.

In terms of employment, the CL-41/CJ610 program will mean an average of about 1000 jobs at Canadair and 250 jobs at Orenda Engines, over a three year period.

TransAir's Airbus still pulling its weight

THOUGHT to be the sole survivor of its species anywhere in the world, the vintage Bellanca Airbus owned by TransAir Ltd. recently went back on operations from Lynn Lake, Man., following a regular check in the company's shops.

The TransAir Bellanca, CF-BTW, one of three of its type sold in Canada prior to World War II, was built in 1938 and originally bought by Canadian Airways Ltd. At least one (CF-BKV) of the three saw service with Mackenzie Air Service Ltd., operating north of Edmonton in the area of Lake Athabaska and other high latitude points. This particular machine survived a trip through the ice in December, 1940, and a couple of months almost completely submerged beneath the icy waters of Lake Athabaska, then went on to see further service along with BTW and the third machine, in the colors of Canadian Pacific Airlines.

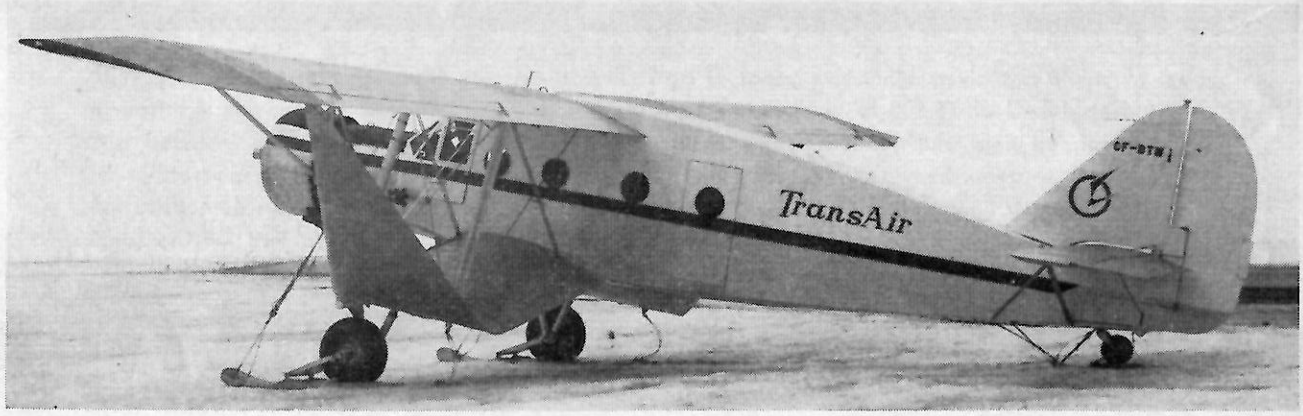
CPA left one of the three Bellancas in the bush and sold the remaining two to Central Northern Airways Ltd., one of the companies from which TransAir was formed in 1956. CNA also left one of the Bellancas in the bush, so that when TransAir was born, it inherited the sole remaining Airbus.

In its younger days, BTW was used on passenger runs, accommodating ten and being operated by a crew of two. Now, flown by Captain Stan Elliott, the aircraft is engaged in the more prosaic task of moving cargo around the bush country.

Though of quite advanced age chronologically, the Bellanca is still relatively young in terms of flight time; its log book shows only 9000 hours.

The powerplant is a 900 hp Pratt & Whitney Hornet, itself unique in Canada. The Hornet engine series was brought out in 1926 and continued in parallel development with the better known Wasp until the late thirties. Over half of the parts are interchangeable with those of the slightly smaller Wasp.

The Airbus cruises at 110 and stalls at a docile 60 mph, and its ability to lift a 3000 lb. payload out of confined areas normally reserved for lightplanes, once prompted a TransAir admirer to say that . . . "the Airbus carries more tonnage farther and cheaper than anything else we've got."



AVRO 748 PASSES PLOUGHED FIELD TEST

The Avro 748 has given conclusive proof of its ability to operate from the worst surfaces. With a disposable load of 15,500 lb., including 23 passengers, the aircraft took off and landed from a deep ploughed field much of which was actually water bound. A surface which included ruts up to two feet deep, heavy clinging mud and soft furrowing soil did not deter the aircraft or its Rolls-Royce Dart engines. Even under these conditions the 748 gave a remarkable demonstration of engine cut on take-off. Ample proof of the rugged capability of the Avro 748 — the ideal feeder-liner for airlines everywhere.

HAWKER SIDDELEY AVIATION

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