

# THE AVRO JETLINER

## *Shutting Down Another National Dream*

by Captain Tony Keene



The Avro Jetliner first flew on 10 Aug 1949

*"To Howard Hughes, that aircraft was like a woman he always wanted but could never have."*

(Greig Stewart)

In the 1950s, two of the world's leading aeronautical countries were involved in a race to see which could produce the first commercial jet aircraft. Britain was developing the de Havilland Comet, intended to be a trans-Atlantic carrier. The other country was Canada, where a powerhouse of an aircraft company named Avro was just about ready to flight-test a small, four-engined aircraft called simply, "The Jetliner."

The Comet flew first, managing a brief hop off the runway on 27 Jul 1949. Avro test pilot Jim Orrell tried twice to do the same thing, realized he didn't have enough runway, so on 10 Aug 1949, he went all the way, taking the Jetliner up to 11,000 ft and staying aloft for an hour.

America's first entry in the jet airliner business was the Boeing 707. Although the prototype did not take to the air until 15 Jul 1954, thousands of derivatives still remain in service world-wide, a tribute to

the durability and dependability of this fabulous aircraft. The Comet recovered from a near-fatal flaw, and many can still be seen in the livery of small and medium carriers around the globe.

But there was only one Jetliner, and this is its story.

It began during wartime, with the formation of a company called Victory Aircraft. Located at Malton, near Toronto, Victory manufactured, under license, what was arguably one of the most successful large aircraft of the WWII, the Avro Lancaster. When the war ended, production shut down. But far-sighted British and Canadian businessmen and engineers realized that here was the infrastructure necessary for the birth of a domestic aviation industry. On 1 Sep 1945, A.V. Roe Canada Limited was incorporat-



Avro company test pilots Jimmy Orrell, Don Rogers and Bill Baker

ed with capital of \$2.5 million. Sir Roy Dobson was its first president, J.P. Bickell was chairman of the board. On 1 Dec 1945, A.V. Roe, or Avro as it became known, took over the Victory plant and began doing all manner of small jobs. But big jobs were not long in coming.

Canada's national flag carrier at this time was Trans-Canada Air Lines, or TCA,

set up as a Crown corporation in 1937. After the war, it was looking to expand, and several manufacturers were lobbying hard to sell its new prop-driven aircraft. Sir Roy saw potential for his company, and set about pushing for a medium-range jet transport. The initial idea called for a 36-seat, twin-turboprop, but Rolls-Royce in Britain came forward with a new pure-jet engine, the Avon J65.

With a thrust of 6,500 lbs, it was way ahead of any other jet then available. Although still classified, clearance was obtained from the Air Ministry to release the engine. Avro Canada was soon fully involved in developing a pure-jet transport.

Similar work was of course going on in Britain, where the genius of Frank Whittle was only just being fully realized. American makers were still being cautious, and it would be years before the first American jet airliner flew. But they were closely watching the Canadian and British developments. The TCA specification called for an aircraft with 36 seats, capable of cruising 1,200 miles at 425 mph. This was just one-third of the range planned for the Comet, but the Canadian aircraft was not intended for trans-Atlantic flight. It was to be used only on the North American market where it would not compete with the British jet.

One of Avro's brightest young designers was Jim Floyd, who had been with the British firm since 1929. Before coming to Canada, he had contributed significantly to such outstanding designs as the Anson and Lancaster. Joined with former Victory engineers Mario Pesando and Stan Cyma, Floyd formed a close knit design team for the revolutionary new aircraft to be known as the C-102.

In March 1947, Trans-Canada sent Avro a rather tightly-defined specification, in the form of a letter from the company president, H.J. Symington. It nailed Avro down to provide an aircraft within 18 months, and at a fixed price of 50 planes of not more than \$350,000 a copy. This was a radical departure from the "cost-plus" contracts that had been let during the war. It pulled the fledgling aircraft

company up short, and resulted in a great deal of haggling and threats of cancellation in the ensuing months.

But the work began. By the following spring, half the design work was completed, and Avro estimated a unit cost for 50 aircraft at \$750,000. This was almost enough to choke Symington, who pulled TCA out of the process. Avro was now alone, and had to decide whether to cancel the aircraft, or seek other buyers. The federal government was providing some financing, and was to pressure TCA repeatedly over the next two years to buy the plane, but to no avail.

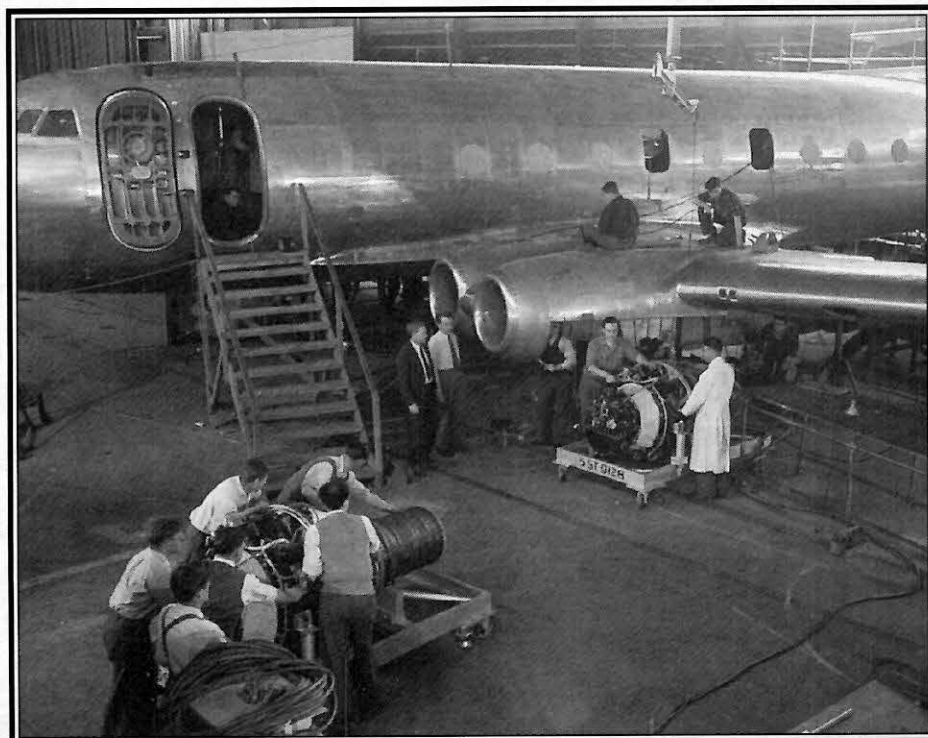
### **The TCA specification called for an aircraft with 36 seats, capable of cruising 1,200 miles at 425 mph.**

Then came another blow. Rolls-Royce would not be allowed to release the Avon J65 engines in time to meet the production schedule, and offered the less-powerful Derwent V engines instead. This meant the design would have to be reconfigured to take four engines instead of the two originally planned. This would also increase fuel consumption. Another factor was the slow pace of installation of instrument landing systems (ILS) at Canadian airports, meaning the C-102 would have to carry even more fuel to allow it to loiter.

Although TCA had withdrawn its original offer to buy 50 aircraft, it continued to offer suggestions and amendments to the aircraft specs, much to the annoyance of senior Avro personnel. But as long as the national carrier was still interested, it would not do to be less than polite at this point.

As 1948 rolled along, the American firms began to show interest. Eddie Rickenbacker of Eastern and C.R. Smith of American were initially enthusiastic, and then backed away from the idea of a jet aircraft. G.T. Baker, the less-than-conventional chief of National, sent two of his engineers up to Canada to look at the C-102, and reported that "they came back stark raving mad with enthusiasm for it." National began talks with Avro for the purchase of 10 aircraft, and things began to look up.

Then on 27 Jul 1949, in England, the Comet made its short hop off the runway, beginning the commercial jet age. At Malton, as the time for the C-102's maiden flight neared, the runways were torn up for construction work, leaving very little room for error. Avro brought over its chief test pilot from England, Jim Orrell, and taxi trials began. But when he tried to make a hop like the Comet had done, he realized that there was not enough runway. Twice he blew the Jetliner's tires by banging on the brakes at the last second.



**Technicians prepare to install engines in the Jetliner at the A.V. Roe plant in Malton, Ont**

It would have to be all or nothing.

10 Aug 1949 dawned hot. By mid-day, it was 90°F in the shade. Aircraft CF-EJD-X took off smoothly, climbed to 8,000 ft, and performed almost flawlessly for close to an hour before landing easily in a 30-knot crosswind. The Jetliner had followed the Comet by 13 days, but it was still a long way from seeing airline service.

The aircraft soon reached a speed of 450 knots in further flights, and on 18 Apr 1950, it completed the first-known international jet transport trip on a flight from Toronto to New York, coincidentally inaugurating the age of jet transport flight in the United States. Flight time was just 70 minutes and the Jetliner later went on to fly from Winnipeg to Toronto in two hours 33 minutes, and Toronto to Tampa, Florida, in two hours 58 minutes.

Newspaper coverage of the event was similar to that which occurred when *Sputnik* kicked off the space race. Many Americans were jolted out of their complacency. The *Rochester Democrat and Chronicle* wrote: "The Canadian plane's feat accelerated (the) realization that Uncle Sam has no monopoly on genius."

An aggressive marketing program now began, with sales pitches to the RCAF, the USAF and the U.S. Navy. TCA had already indicated it was no longer interested, but the minister of munitions and supply, Clarence Decatur "C.D." Howe, ordered TCA president Gordon McGregor to go on the New York flight, hoping it might change his mind. It didn't.

In 1950, North Korean troops poured south, and the West found itself hip-deep in another war, five years after the defeat of the Axis powers. The year before, Canada had joined NATO, with a military numbering barely 50,000 all ranks and equipped for the

past war, not the present one. C.D. Howe reached out for an aggressive, abrasive character named Crawford Gordon, and appointed him director of production. Almost immediately he looked at the government's contracts with Avro, and what he saw made his eyes widen. Top priority was the company's development of an all-weather fighter, the CF-100 Canuck that was to go on to become one of the great success stories of Canadian aviation. It was way behind in production, and in fact was not ready when the Korean War ended. And then there was the Jetliner, which was costing money for no foreseeable return.

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In late summer of 1951, Avro offered Gordon the job of general manager, and he accepted. One of the first things he did was order the cancellation of the second Jetliner prototype. In his opinion, the company had been founded in wartime production, and its future lay with military aircraft. However, he had not given up trying to find a buyer, and in early 1952 informally approached Bob Rummell, the president of Trans-World Airlines. The owner of TWA was none other than the famed billionaire Howard Hughes. The Hughes Aircraft

Company of Culver City, Ca, was already involved with Avro, supplying the fire-control system for the CF-100.

On 7 Apr 1952, the Jetliner left for California, ostensibly to be used as a camera platform for the testing of the Hughes MG-2 fire-control system. In reality, it was going down so that Hughes could have a first-hand look at it. Pilot Don Rogers took him up for a trial flight, and Hughes did several touch-and-go circuits. Then on landing he placed guards around the plane, and it never was used as a flying test bed. Hughes was to keep the aircraft and Avro officials and employees at his beck and call for the better part of six months. As author

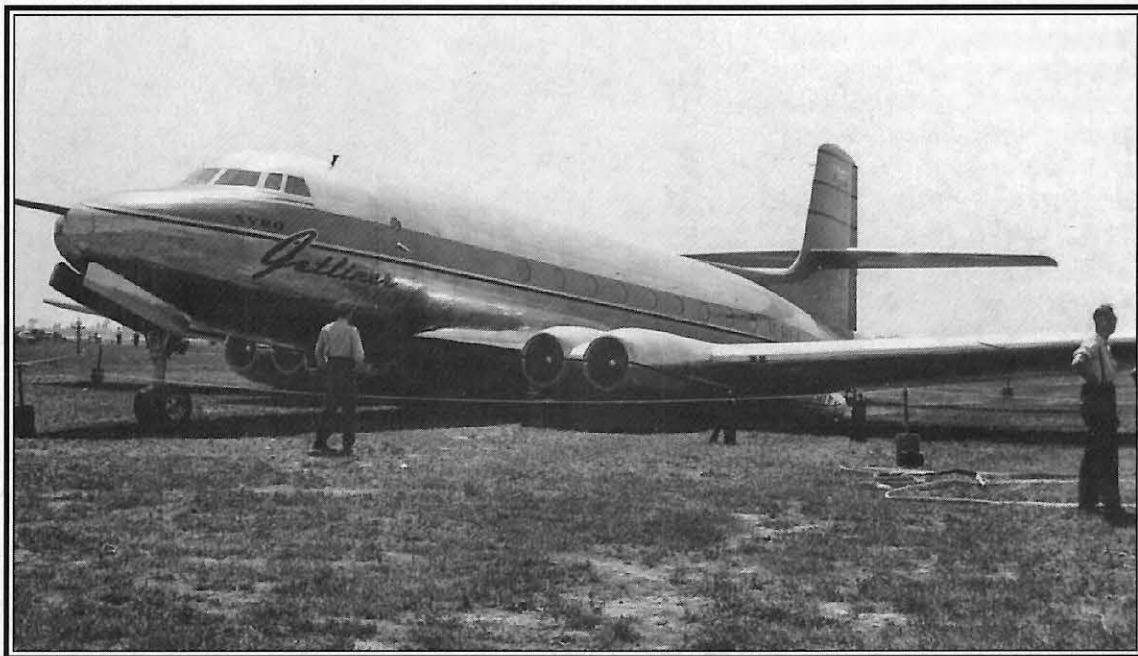
Greig Stewart put it in his book, *Shutting Down the National Dream*, "Howard Hughes had himself a new toy."

Gordon had flown down ahead of the Jetliner, and installed himself and his staff on an entire floor of the Beverly Hills Hotel. The flight crew and other employees stayed in less-

er digs, but when summer came and school was out, Hughes put up the Canadian flyers and their families in houses in Coldwater Canyon.

As negotiations dragged on, several versions of the aircraft were discussed, using different engines such as the Derwent, the Rolls-Royce Nene, and the Pratt and Whitney J-57. Avro felt it would be best to have the Jetliner manufactured under licence in the United States, but the American industry was tied up with Korean War work. Another factor was that Gordon and Hughes

**A not-too-serious mishap occurred during the second test flight of the Jetliner on 17 Aug 1949 when the gear "hung up." Damage was minimal**



had dissimilar personalities, the American was elusive in his thought processes and with his person, whereas the bluff Canadian was direct and open. The endless, seemingly arbitrary meetings with Hughes began to tell on Gordon's nerves.

During one such interminable meeting, Hughes excused himself to go to the washroom. After 90 minutes had passed, Gordon asked an aide where Hughes was, in typically-blunt language, "Has he disappeared down the goddamn hole?" The aide informed Gordon that Hughes was in fact still in the washroom, talking on the phone. There were several phones in the toilet, and Hughes made full use of them. When he finally emerged, he couldn't understand why Gordon had stormed out.

The Canadian got his revenge a few days later. During a meeting in Hughes' office, the heavy-drinking Gordon asked to use the washroom, and Hughes pointed him down the hall to an employees toilet. Gordon stood up and walked into Hughes' personal executive washroom, locking the door behind him, where he proceeded to urinate everywhere except into the commode. The aircraft magnate's

reaction was not recorded, but Gordon left for Canada a few days later, although talks continued with subordinate officials.

The Canadian government, in the person of C.D. Howe, was becoming impatient. It wanted the CF-100, and it wanted a return on its investment. Finally, too late, Hughes made a firm offer. He would pay the full cost of building 30 Jetliners at the company's plant at Malton. The Jetliner had finally found a buyer, but it was not to be.

C.D. Howe wrote to Gordon, "I have heard rumours... that you are planning to use part of the space in the Avro plant for further work on the C-102 civilian airplane... Having in mind the colossal investment of government funds in Avro at the present time, any such use of your floor space cannot be tolerated. I have instructed you... the C-102 is to be moved out of any useful manufacturing space in your plant and put aside until such time as the government investment in your facilities... has been brought to a reasonable figure."

The Jetliner continued to fly, on projects related to the CF-100. Eventually as spare parts became scarce it was ground-

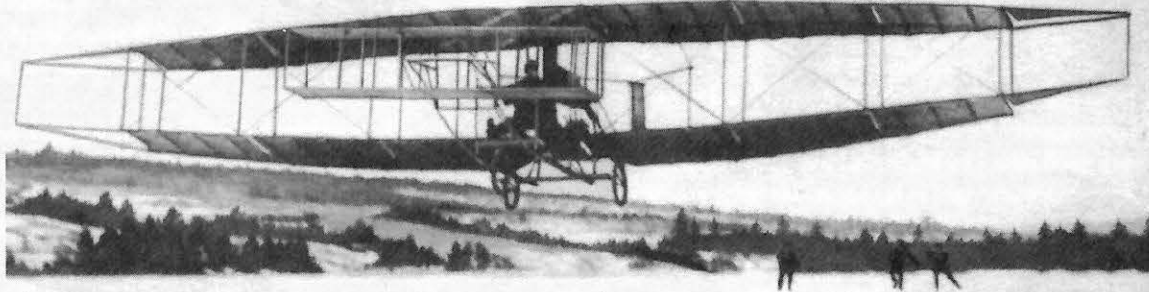
ed. It flew for the last time in Nov 1956. It was offered to museums but there were no takers, and so it was cut up for scrap. Its main wheels were used on a farm wagon. Only the cockpit section survives at the National Aviation Museum in Ottawa.

It would be 10 years before a comparable inter-urban aircraft would fly. Little could Crawford Gordon and Avro know that, just three short years after the scrapping of the Jetliner, the company's biggest and brightest project, the supersonic Arrow fighter-interceptor, would suffer the same fate, bringing down not only the company but also almost the entire Canadian aerospace industry with it. Cancelled in 1959 by arbitrary government fiat, the Arrow would become the stuff of legend, elevated to near-religious status as a symbol of what might have been. But today few Canadians realize that, long before the Arrow, the Jetliner had put Canada on the map as a world leader in jet-powered flight. ☺

(Ed note: Capt Keene is a public affairs officer at Air Transport Group Headquarters in Trenton, Ont.)

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