

North America's First "Regional" Jetliner: The Avro C102

By Bob Erdman (SAH 111)

On Aug. 10, 1949, a new and unique aircraft rolled down the Malton, Ontario, Canada, runway and took to the sky – it was the first passenger jet in North America and the first to be called a "Jetliner." The Avro Canada C102 was much smaller and five years ahead of the Boeing 707 and just 10 days behind the larger British deHavilland Comet. It was also far ahead of the Douglas DC-9 which was in the same general category. The C102 was intended as a "regional" jet aircraft such as New York to Washington, D.C., or San Francisco, to Los Angeles, Calif.

The aircraft had been conceived in 1945 at the end of World War II as a 50-passenger, 400 mph product. Avro had designed and produced a prototype to use as a demonstrator to the airlines. It was to be a twin-engine aircraft but the engines they wanted were not available. They had to use four Rolls-Royce Derwent 5 engines. It was a more expensive approach, however, it provided a higher margin of safety. The plan was presented to Trans-Canada Airlines (TCA) – the airline was so impressed they issued a letter of intent to purchase a "number" of the type. Upon further consideration, TCA decided to concentrate

on new prop aircraft and cancelled the purchase. (TCA, being government-owned, ultimately cancelled the purchase of Avro jet aircraft in favor of modified prop aircraft being built by a government plant in Montreal).

After completion of flight testing, on April 18, 1950, the aircraft was flown to New York to show it to management of several airlines. Avro marketing was so impressed they forecast a market for up to 500 of the model – a massive number in those days.

An extensive demonstration plan was developed starting with the flight to New York. Key management of United Airlines, American Airlines and National Airlines were invited to New York's LaGuardia Airport to view and experience flights in the C102. All were very impressed and National issued a letter of intent to buy four of the type and options for an additional six. In addition, the United States Air Force expressed an interest in 12 of the type for training and research into in-flight refueling of fighter jet aircraft. Unfortunately, the Canadian military had placed a large order for CF-100 fighter jets they needed because of the Korean War. As a result the Canadian Minister of Muni-

tions and Supply ordered an immediate halt to the C102 so Avro could focus all effort on the CF-100.

However, further demonstration flights had already been scheduled including one to California where the aircraft was shown to Howard Hughes. Hughes took an instant interest in the aircraft to be used by Trans World Airlines, in which he held major ownership. Hughes wanted thirty of the type but it was too late as the project had been cancelled. He even tried to get production moved to Convair. He was not successful in that plan and the prototype was flown back to Malton. The only prototype was soon ordered scrapped, the cockpit cut off and given to the Canada Aviation and Space Museum in Ottawa where it remains to this day.

Though the original design was for fifty passengers there was a second prototype under construction with an extended fuselage, greater fuel capacity and adapting it to use two new, more powerful engines. With these enhancements, the C102 would have matched those of the future Boeing 737, which had its first flight on April 9, 1967. Such a lead would probably have precluded Boeing's huge success with the 737 –



Only one AVRO Canada C102 Jetliner was built in 1949. The project was cancelled to produce CF 100 jet interceptors for the Royal Canadian Air Force. Only the C100's nose sections remains at the Canada Aviation and Space Museum. (Photo courtesy of the A.V. Roe Canada Aviation Museum, Calgary, Alberta).



The Bombardier CS100 jetliner's first flight was in 2013 and there is now an order backlog for the aircraft. First deliveries of the CS100 are expected in 2015. It is the follow-on to the successful line of Bombardier regional jets. The CS 100 is an all-new design with advanced features, extended range, and is capable of being upgraded for greater passenger capacity. (Photo courtesy of Bombardier, Inc.)

8,000 of the type delivered to date. In addition, the Airbus A-320 is in the same category as the 737 and has delivered more than 6,000 to date. A very large transport market missed by Avro!

Bombardier Canada and Embraer Brazil recognized the need for "regional" aircraft and developed propeller versions and subsequently twin-engine jet versions. The later have been very successful, however, because of their small size and range they were used on short routes. In fact, it is likely these models will be phased out and be replaced by new designs.

Fast forward to the present – there are now nine new proposals, designs and/or aircraft to fill the C102's intended market, some of which are pushing up into the Boeing and Airbus range. These are:

Brazil

- Embraer E-Jets E-170 and E-190. Currently in production and operation.

Canada

- Bombardier: CS100. The first unit is in flight test and there are more than 300 booked orders including Odyssey Airlines in England. The Odyssey aircraft will have 40 business class seats and will fly from the London City airport across the Atlantic and other cities. First CS-100 delivery is expected early 2015.

China

- COMAC C 919. First flight planned for 2015. Intended to compete with Boeing 737 and Airbus A-320.

Japan

- Mitsubishi MRJ 70 and MRJ 90. First flight planned for 2015. As of 2010 it was in "early manufacturing" using carbon fiber composite.
- Kawasaki YPX. Current status "proposed."

Russia

- Antonov An-148. First flight December 2004 – designed in the Ukraine. In production and in service. About 40 built in

Russia.

- Irkut MS-21 (model to be changed to Yak-242). First flight planned for 2015/2016. Intended to compete with Boeing 737 and Airbus A-320.
- Sukhoi Superjet 100. First flight was May 2008. Current deliveries – about 60. One aircraft crashed while on a demonstration flight. Several American companies are providing components; Boeing is providing "Marketing/Consulting."
- Tupolev Tu-334. First flight in February 1999. Two units produced; program cancelled.

The so-called "midsize" hubs for the "jetliner" class aircraft are seeing some reduction in passenger boardings and flights. However, retirement of the current type aircraft used presents an opportunity for replacement. The aircraft listed above are larger, more efficient and better-equipped so the market opportunity is there and several are in a position to capture a reasonable share. It is conceivable they can even be successful going head-to-head with Boeing and Air. ➔