

Flying Into History

Remembering the Avro Arrow



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Overview

The Avro CF-105 “*Arrow*” was a delta-wing jet interceptor aircraft, designed and built by A.V. Roe Canada Limited in Malton as the culmination of a design study that began in 1953. Go-ahead on the production of the CF-105 was given in 1955, and the AVRO *Arrow* was rolled out for the public on October 4, 1957. The first test flight took place on March 25, 1958. The *Arrow* and the accompanying Orenda Iroquois jet engine program were abruptly cancelled by the Federal Government on February 20, 1959 (“Black Friday”), sparking a long and bitter social and political debate. At the time of its cancellation the *Arrow* was considered to be one of the most advanced aircrafts in the world. It was built, flown, and destroyed within the City of Mississauga.



Front cover: AVRO *Arrow* RL-205 in flight, photo courtesy of the Canadian Aviation Historical Society

Above: Celebrating the first flight of AVRO *Arrow* RL-201 with chief test pilot Jan Zurakowski, photo courtesy of the Windsor Star

The story of the *Arrow* began in 1952 when the Royal Canadian Air Force (RCAF) was looking to develop a new all-weather jet interceptor capable of extremely high levels of performance. The RCAF contracted A.V. Roe Canada (AVRO Canada), which was based in Malton, Ontario. Avro had already produced the CF-100 “*Canuck*”, Canada’s first all-weather jet interceptor.

In 1953, research and design for the CF-105 supersonic, all-weather jet interceptor began, with formal production and testing starting in 1954. Dubbed the “*Arrow*”, ultimately five Mark I *Arrows* soared in the skies above historic Mississauga (RL-201, 202, 203, 204 & 205). The first CF-105 *Arrow* was rolled out on October 4, 1957. The future of aviation in Canada seemed bright.

Only four pilots took the controls of an *Arrow* in flight: Janusz “Zura” Zurakowski (1914-2004) was the lead test pilot for the program until 1958; Wladyslaw “Spud” Potocki (1919-1996) saw the most air time, flying over 34 hours in the *Arrows*; Peter Roland Cope (1921-2005) accomplished the shortest known landing in an *Arrow*; and Flight Lieutenant Jack Woodman (1925-1967) was the only Canadian-born pilot to fly an *Arrow*.

The five flying *Arrows* were powered by Pratt & Whitney J75 engines. In early 1959 the first Mark II *Arrow*, RL-206, was nearing completion and was to be fitted with the more powerful Orenda PS-13 “*Iroquois*” engine, but it never had the chance to fly.

On “Black Friday”, February 20, 1959, Prime Minister John Diefenbaker announced the immediate cancellation of the AVRO *Arrow* program. All traces of the program – planes, parts and plans – were ordered to be destroyed. In the weeks and months following the cancellation, the five flying *Arrows* were cut into scrap, and all in-production aircrafts, including the nearly finished RL-206, were destroyed.

Research & Development

With its first test flight on March 25, 1958, the *Arrow* was quickly recognized as the most powerful and sophisticated jet interceptor aircraft in the world. The development and subsequent test flights of the *Arrow* are viewed as one of the greatest accomplishments in the history of Canadian aviation.

In the aftermath of the Second World War, A.V. Roe Canada found itself in an excellent position to attract some of the best engineering minds in the world. As a result, the AVRO *Arrow* program was truly innovative for the aeronautics industry and set new design specifications for aircraft development. The Mark I *Arrow* was pushed to Mach 1.98, flying over 2,000 kilometres per hour and to a height of 58,000 feet with “Spud” Potocki at the controls. The AVRO *Arrow* program saw technical innovation in the aspects of design, fabrication, production and assembly. Former Chief of Air Staff Wilf Curtis explained: “Advances were made and limits were extended. Manufacturing techniques and quality control became more exacting. Management skills and methods were learned. Thousands of people improved their abilities and pulled together. When you hear of everyday workers going into Avro early so that they could walk through the plant and see the progress of the *Arrow*, you can’t help but be impressed. Something special was going on in Malton during those days.”

The AVRO *Arrow* design team was confident that the Mark II *Arrows*, starting with RL-206 and its Iroquois engine, would surpass Mach 2 easily. Even though only five Mark I *Arrows* ever flew, they set a new standard for design and flight performance expectations, and set new milestones in terms of “firsts” in the aeronautics industry.

Top right: A.V. Roe Canada assembly line, photo by Les Wilkinson, courtesy of the Aerospace Heritage Foundation

Bottom right: Roll-out of the AVRO *Arrow* on October 4, 1957, photo by Peter Brennan, courtesy of PAMA



Cancellation



Photo of “Death Row”, taken after May 8, 1959, courtesy of “The Arrow Scrapbook” by Peter Zuuring

Less than a week after the first flight of the *Arrow*, the Conservative party won in a landslide federal election. The new government immediately began to reassess all funding commitments undertaken by the previous Liberal administration, including the AVRO *Arrow* program. New Prime Minister John Diefenbaker publicly voiced concern over the costs of the AVRO *Arrow* program, and in September 1958 the government announced that all financial commitments would be fully reviewed in six months. This, together with the emerging perceived threat of nuclear weapons and the desire to employ the Bomarc missile defence system, led to doubts that Canada could afford to fund the *Arrow* program. In a very real sense, the *Arrow* was both ahead of its time and becoming obsolete.

February 20, 1959 would become known as “Black Friday”, as Prime Minister Diefenbaker announced that the AVRO *Arrow* and the Iroquois engine program were to be immediately terminated. Cancellation brought the total development costs of the *Arrow* program to around \$470 million. A.V. Roe Canada was decimated; top management and engineering personnel resigned, and over 14,000 skilled employees found themselves out of work.

Legacy

The trickle-down effect of the cancellation was enormous and far-reaching. The total estimated population of historic Mississauga in 1959 was 52,682 people, and the estimated number of jobs affected by the cancellation was about 12% of the total working population!

Within two months of the cancellation, all airframes, engines, production and fabrication tooling, component parts, blueprints, plans, and technical information were ordered to be scrapped. Part of the reasoning was a fear of espionage involving classified information connected with the CF-105 project.

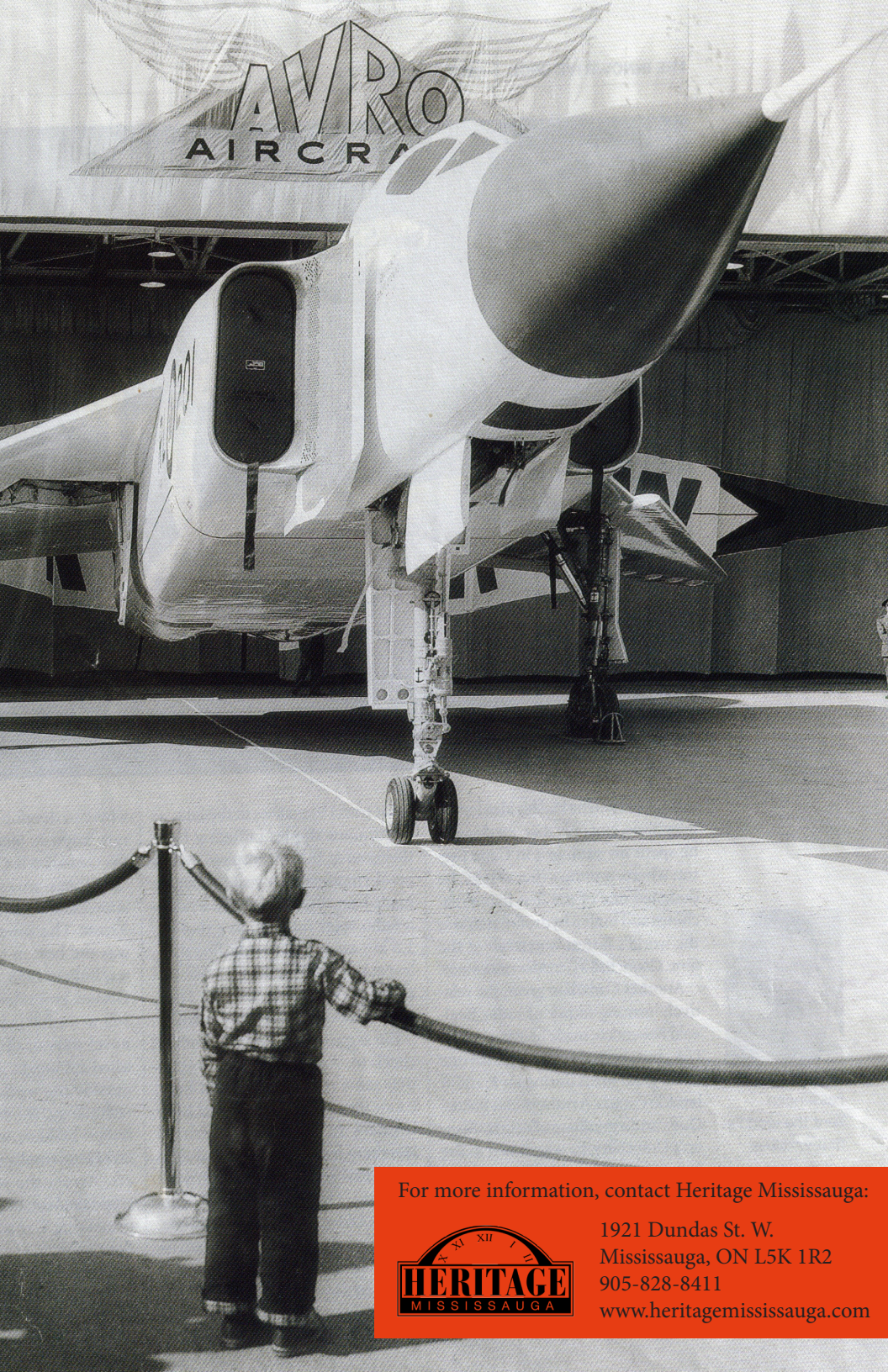
The contract to destroy the airplanes was awarded to Samco Steel of Hamilton on May 11, 1959. According to photo evidence, the scrapping process of the five flying *Arrows* began around May 18, 1959, and the last flying *Arrows* were finished being destroyed by July 17, 1959. The five flying *Arrows* were cut apart by torch and by hand, while those on the assembly line were rumoured to be unceremoniously scrapped by a bulldozer.

Over time the AVRO Arrow has become a legend for both Mississauga and Canada. As a story that includes a mixture of facts, myths, and conspiracy theories, it refuses to stay quiet.

Below: AVRO Arrow RL-201 in flight, 1958, photo courtesy of Heritage Mississauga

Back cover: Leo Ariel at the Roll-out of the AVRO Arrow, October 4, 1957, photo courtesy of Dave Cook





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