

all the intact B-17s that were flying in the world when they flew over an apartment building where we were having a party. They had Mustangs doing a criss-cross scissor protection technique behind the aircraft like they used to do in the war.

AIRFORCE: I understand there's a connection with the character you play and your family?

AYKROYD: My mother worked in munitions supply during the war. She knew Crawford Gordon quite well, he was in and out of that office all the time. That represents a personal link to the story that I felt was kind of neat. I got some insight into his character from her. She said he was quite aggressive and a real go-getter. I like the dimension of the character because he was a man's man for the times. He had vulnerabilities: the drinking, the smoking and a weakness for a pretty lady now and again. He was very successful at a young age. He ran Canadian General Electric when he was in his late 30's and he was a war hero decorated by the Crown for his work in racing munitions to the front-lines. And then when he took over Avro he was in his 40's which was quite young for a CEO. A tragic figure as well, he died at 52 in Manhattan. He never came back to Toronto after the Arrow

was cancelled. It represented a big part of his life and his heart was broken by it. I like the serious stuff too. I really enjoy doing it. First of all, it's easier than comedy, much easier.

AIRFORCE: The Arrow mini-series is rather important to the air force. It was a very significant time in the air force's history with a very unfortunate outcome. Do you have a message for the people in the air force today?

AYKROYD: I think that the people in the Air Force can certainly be proud of their record in history in all the world conflicts they have been involved in. The Canadian Air Force is certainly recognized throughout the world as having the top people flying the top technology and there is nothing that the Air Force can't do. In fact, the U.S. force is bigger but the Air Force has people who are certainly capable of the same achievements. I support any enterprise where young peoples' talents are fostered and where Canadians can show the world that we've got the right stuff.

AIRFORCE: Thank you very much Dan, and continued success with your film career and night-club business.

The Avro Arrow Story

by Bill Zuk

When Avro Canada was finally able to showcase their remarkable new interceptor, the Hon George Pearkes, minister of national defence announced, "I now have the pleasure of unveiling the Avro Arrow, Canada's first supersonic aircraft, a symbol of a new era for Canada in the air."

This was merely the official ceremony, as for most knowledgeable observers of Canadian military aviation, the CF-105 Avro Arrow had already been an object of much attention. Arrow RL-201 was the first of a planned series of 100 aircraft. Construction of "201" would take only 28 months from the release of the first blueprints to its roll-out, but the story of the Avro Arrow had begun much earlier.

Designed to RCAF specifications in 1953 that called for a twin-engine, two seat interceptor capable of protecting the Arctic frontier of Canada, the Arrow was remarkable in its execution. Unlike its subsonic predecessor, the CF-100 Canuck, the

Arrow represented an advanced technological achievement. Developed by A.V. Roe of Canada, its origins stem from the innovative research and design programs carried out by the company during the 1940's.

The Avro Arrow was one of the world's most advanced fighter aircraft during the 1950s. The developed Arrow Mk.II powered by Canadian-designed Iroquois engines would have been capable of Mach 2.4 speeds – remarkable for 1959! An innovative approach was also undertaken by Avro to establish production tooling from the outset, resulting in the first Arrow reaching completion on 4 Oct 1957.

RL-201 was the first of five Arrow Mk.I's that would fly as prototypes for the series (RL-201, 202, 203, 204 and 205). Equipped with Pratt and Whitney J-75 engines, the initial production batch were fascinating hints of the future. Utilizing a complex "fly-

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Some Avro Arrow Trivia

- ✦ First fly by wire aircraft (next was the X-15).
- ✦ First flying 4,000 psi hydraulic system (second was the USAF B-1B bomber).
- ✦ First one-to-one thrust class fighter.
- ✦ Iroquois engine is believed to have recorded the highest dry thrust in the free world at the time for turbojets.
- ✦ Mk.III Arrow had a planned max speed of Mach 3 and combat ceiling of 68,600 ft.
- ✦ Planned climb rate from sea level for Mk.III Arrow was 60,000 ft per minute.
- ✦ At the time of cancellation, Avro had the largest amount of refined titanium in the free world. They were a major supplier to the U.S. engine manufacturers because of their refining process.
- ✦ Flight test performance curves indicated the Iroquois equipped Arrow would be capable of Mach 1.1 "super-cruise" at sea level.
- ✦ By cancellation date the Iroquois had accumulated at least 7,000 hrs running time on 13 engines. Idle to full afterburner thrust was 4.5 seconds including automatic nozzle arrangement.
- ✦ 97 percent of the parts were on hand for the first 37 Arrows at cancellation.

The nose section and a few other fragments of Avro Arrow RL-206 are the only remaining artifacts of what was once a national dream.

by-wire" control, an advanced weapons system and remote ground-controlled operation, the Arrow was, arguably, the most advanced fighter aircraft of its day.

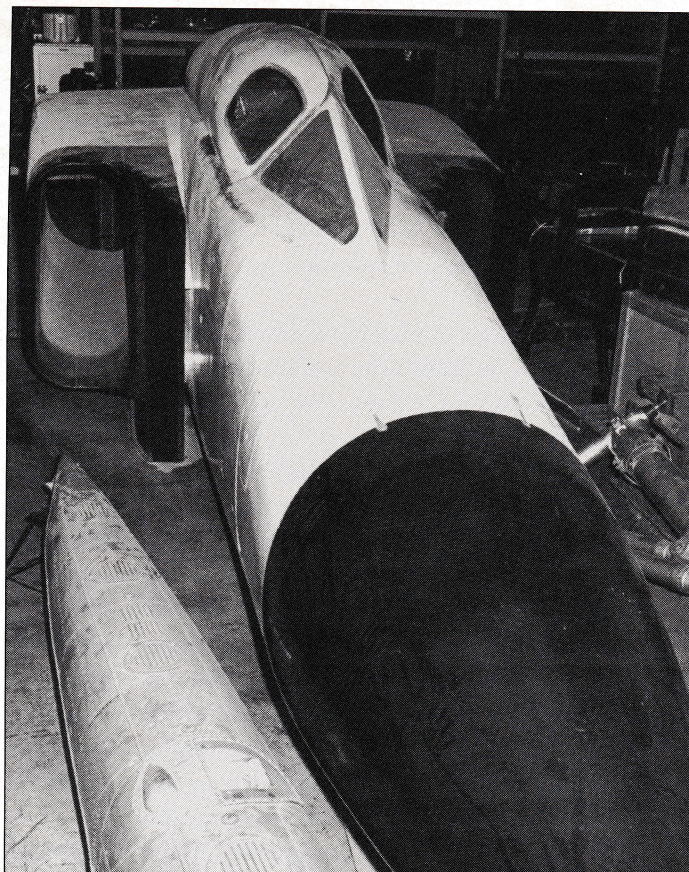
An earlier design from the Avro Company, the Avro C-102 Jetliner was North America's first jet airliner and one of the outstanding aeronautical achievements of its day (see "The Avro Jetliner – Shutting Down Another National Dream," *Airforce*, summer 1996). It never saw production as the Canadian government insisted that Avro concentrate on their military jet program, the CF-100 fighter. When no foreign sales were generated, the Jetliner was sold for scrap in 1956.

Avro's main jet program in the 1950s was based on the CF-100 Canuck, the first military aircraft wholly designed and built in Canada, and one of its first jet fighters. The CF-100 was a long-range, all-weather interceptor equipped with two Avro-designed and built Orenda engines. The CF-100 became operational in April 1953 and served 10 years with NORAD and NATO squadrons (692 were eventually built with 53 being sold to Belgium).

In the 1950s, Canadian and American air defence organizations were integrated under the NORAD Agreement. The RCAF role of northern air defence depended on the next development of the Avro Company – the Arrow. The Liberal government at the time authorized two prototype airframes of an advanced supersonic interceptor in Dec 1953. It was anticipated that a production run of up to 600 aircraft costing \$2 million apiece was needed.

During the design phase, the Avro Company led by its dynamic CEO, Crawford Gordon, undertook the expensive development of the Arrow's engine, and fire-control and missile systems, with estimated costs rising to \$12.5 million per aircraft. Test flights indicated that with the Canadian-built Iroquois engines, the Arrow could well be the world's fastest and most advanced interceptor. However, doubts in the military and the government over the role of the Arrow mounted and the government's order shrank to 100. Unit costs rose yet again.

The potential of the Arrow was realized by Avro's chief test pilot, Janusz Zurkowski. He piloted the Arrow on its first flight on 25 Mar 1958 and exceed-

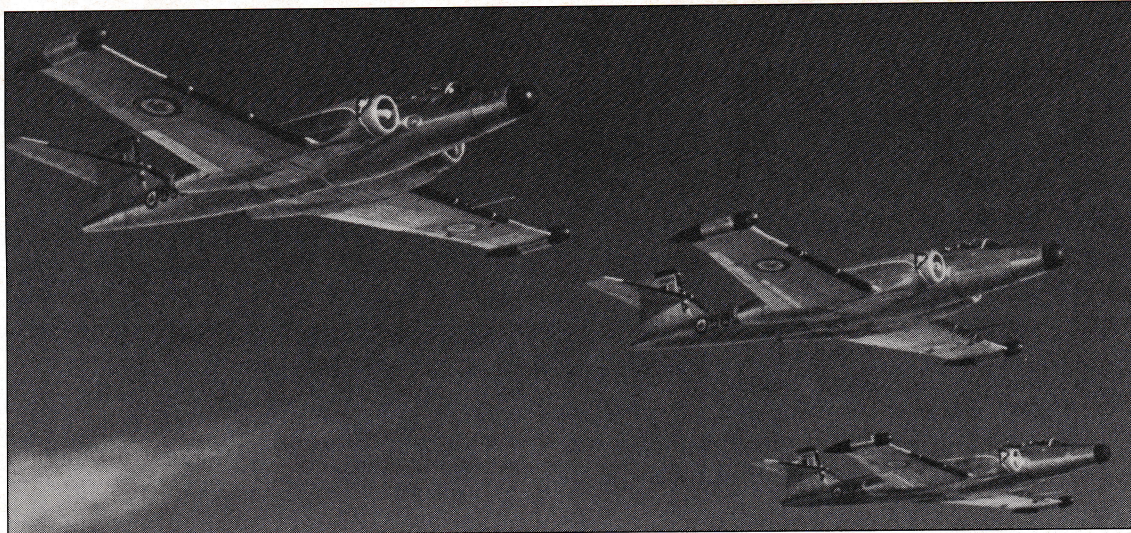


ed 865 knots on the seventh flight of RL-201. Zurkowski was awarded the McKee Trophy in 1958 primarily for his work on the CF-105 program. In all, 66 test flights totalling 70 hours and 30 minutes were completed by four test pilots flying five aircraft between 25 Mar 1958 and 20 Feb 1959.

Other events were soon to overtake the Arrow project. In Oct 1958, to cut costs, the newly elected Progressive Conservative government of John Diefenbaker terminated the Canadian fire-control and missile development, and renewed efforts to sell the aircraft to the United States. Diefenbaker as well considered the Arrow program a Liberal "pet" project.

The PM and his new minister of national defence, George Pearkes, hastily accepted the advice of the Canadian military and agreed to integrate the RCAF with the USAF for the air defence of the continent. The Diefenbaker cabinet proposed the Bomarc missile as an adequate deterrent. The cost-effective, but flawed Bomarc was greatly resented by supporters of the Arrow. As Crawford Gordon launched a last-ditch effort to keep the project on-track, it was clear there was considerable resistance in the Diefenbaker government to continue with the costly development of the Arrow.

The Arrow project was officially cancelled by Diefenbaker on 20 Feb 1959 (known as "Black Fri-



The Avro CF-100 Canuck was Canada's first line of defence in the 1950's. The Avro Arrow would have superceded it in the 60's, had the project not been cancelled.

day" at Avro). Company directors led by Gordon fired nearly 14,000 employees. The Diefenbaker government cited high costs and its new commitment to missiles rather than manned aircraft defence as the reasons for the program cancellation. Three months later, the government also ordered that all aircraft completed, including RL-206, the first Arrow Mk.II, and all partially completed Arrows still on the assembly line, be destroyed.

This vindictive decision by the government was further bolstered by demands that all evidence of the CF-105's existence, including tools, dies, drawings and photographs also be destroyed. To many people the resulting flight of scientists and engineers meant the end of Canada's aviation industry. The Avro Company completed the destruction but not surprisingly, the Arrow remains alive in people's memories, along with the few fragments which had been preserved.

The Avro Arrow program was one of great promise but unfulfilled objectives. It was undoubtedly one of the most advanced jet interceptors in the world, but owing to the prohibitive costs of

development, it was an extremely costly venture for Canada. With changing political and military policy considerations that emerged in the late 1950s, the Arrow was doomed. However, its cancellation was a disaster for the aviation industry in Canada and practically ensured that future military aircraft would have to be purchased abroad.

Today, the Avro Arrow only remains a memory although some sections of Arrow Mk.II RL-206 (nose, front landing gear and Avro Iroquois engine) are preserved in the National Aviation Museum in Ottawa. In a quirk of fate, the Avro Arrow parts sit near the chopped up nose section of the Avro Jetliner, another unrealized dream of Canadian aeronautics. ☺

(Ed note: Bill Zuk of Winnipeg is an amateur aviation historian and writer whose interest in the Avro Arrow is long-standing. Currently a teacher-librarian in St Vital School Division, he is also an active member of a number of associations involved in literature, modelling and aviation history. When the Straight Arrow production team began work in Winnipeg, he asked for and received permission to chronicle for Airforce magazine, the making of the Arrow film.)



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