INTERNATIONAL ASSOCIATION OF MACHINISTS AND AEROSPACE WORKERS

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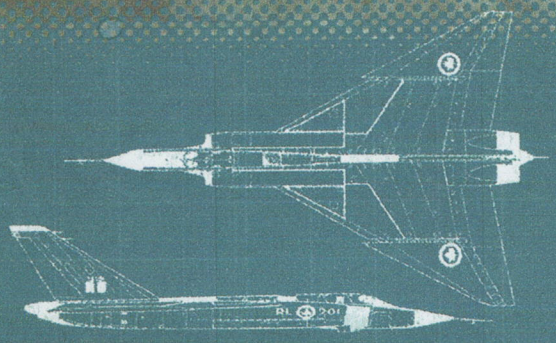
A Canadian aviation icon



15,000 IAMAW members were among the more than 45,000 Canadians employed on the original AVRO CF-105 Arrow jet fighter interceptor program when it was cancelled in February 1959.

We were proud to be a part of it then and we're proud to be part of this full-scale replica, the centrepiece of the Toronto Aerospace Museum. IAMAW Local Lodge 905 members at Messier-Dowty built the landing gear for the replica.

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The return of a legend

Machinists help rebuild memories of the great days of Canadian aerospace

Toronto, ON — It dominates the tarmac in front of the hangar just like its predecessor did 50 years before. The paint scheme of this massive creation of Canadian aviation expertise — brilliant white with hints of matte black and day-glo orange — stands out in marked contrast to the overcast grey skies of an impending thunder storm. The red maple leaf in blue roundels on the delta wing and fuselage proudly signify the Canadian Air Force and the registration markings just aft of the cockpit — RL203 ("Roe Limited 203") — identify it as the third production prototype of the CF-105 AVRO Arrow Mark 1. It is an exact replica of the supersonic jet fighter that represented the pinnacle of Canadian aviation technological achievement in the 1950's.

I was looking at a ghost, and a rather large one at that, measuring 80 feet in length, 21 feet high, with a wingspan of 50 feet. Appearances, as they say, can be deceiving. While the exterior measurements of the replica are exact down to the last rivet — all 100,000 of them — she contains no engines and, as such, weights just over 7,000 pounds, compared to an empty weight of 49,000 pounds for her predecessor.

While it took thousands of highly trained aviation workers 28 months to build the first Arrow prototype during the 1950's, it took 140 volunteers from the Toronto Aerospace Museum eight years to build the replica, and only one of them — 73-year-old IAMAW retiree Peter Allnutt — had worked on the original and had any aircraft assembly experience.

I said a ghost because all of the prototype Arrows, all of their production jigs and drawings, were ordered destroyed by the federal government in 1959. That single act created a myth and a legend and since that day the AVRO Arrow has grown into a national icon. Every time Canada recorded an aerospace achievement it was compared to the Arrow and what might have been. The Arrow has been the topic of numerous books, several news documentaries, at least one movie — more fanciful than factual — the centre of countless conspiracy theories and the foundation of a dream that one day, the Arrow would reappear.

Ahead of its time

The Arrow was years ahead of its time. There was nothing even close to it in the world, *and* it was Canadian. It was created from scratch and, in many instances, so was the technology needed to build it. The Arrow was created because the Canadian Air Force could not find a jet-powered interceptor anywhere in the world that could meet its needs for defence against the Soviet bomber threat. The Air Force turned to A.V. Roe Canada, a company which had already designed and produced the first jet transport to fly in North America — The Jetliner, nine years ahead of the Boeing 707 — and the CF-100, the first jet fighter designed and built in Canada, which served for over 30 years. The Arrow was to be the next step and AVRO gathered the finest aviation and scientific minds in the world to build it.

At its peak in 1959, AVRO and its sister company Orenda employed more than 15,000 IAMAW members in Local Lodges 1922, 717, 2030 and 717T. AVRO was the third largest corporation in the country and more than 45,000 Canadian workers were connected to the Arrow project. "To be a part of this was something special," recalls retired IAMAW GLR Jim Goodison, a former AVRO production draftsman and past president of LL 1922. "AVRO went out of its way to buy Canadian," said Goodison. "When I first started work on the CF-100, 95 per cent of the parts were foreign-made but by the time the last one rolled off the line in 1958, it contained 95 per cent Canadian-made parts."

The test results were impressive, with the Arrow prototypes reaching speeds of Mach 1.96, and the newly designed engines promised to set new world speed records. But it was not to be because the federal government cancelled the project on February 20, 1959 citing cost overruns and the need for a manned interceptor had passed. In one afternoon, 45,000 Canadians

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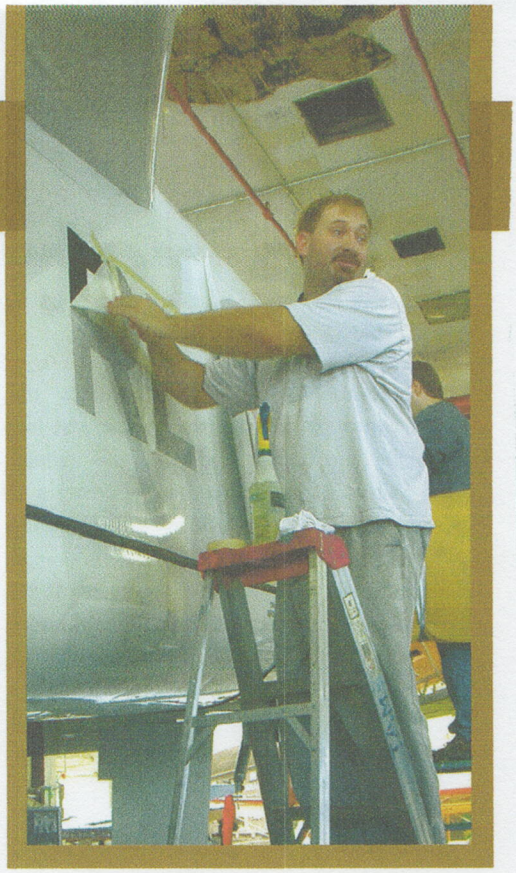
Former IAMAW Local Lodge 717 Shop Steward, Peter Allnutt had the privilege of working on two Arrows: the original from 1957 to 1959, and the replica shown behind him over the last 8 years. Of the 140 Museum volunteer members who worked on the replica, Allnutt was the only one with aircraft assembly experience. Allnutt was an Apprentice Aircraft Fitter with Hawker Aircraft before he moved to Canada in 1956.



Volunteer Mike Baidstow applies the AVRO registration decal to the starboard fuselage of the Arrow replica — "RL" stood for "Roe Limited." The Arrow RL 203 was the third production prototype.

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including 15,000 Machinists lost their jobs and a dream, a source of national pride was erased along with Canada's status as a world leader in aviation.

Having an Arrow replica for a centrepiece exhibit has been the dream of the Toronto Aerospace Museum since its inception in 1997. The dream was realized on October 5, 2006 with the rollout of an exact replica of Arrow RL 203, almost fifty years after the original Arrow made its public debut.

For Peter Allnutt, a flight test mechanic on the original Arrow and former shop steward with IAWAW Local Lodge 717, the replica rollout brought back memories he thought were long since buried. "It's kind of weird in a way because I was 23 and I was young and now I've worked on this one for maybe five or six years. It's a labour of love," reflected Allnutt. He feels the one factor above all else that makes this replica so special is the work of the volunteers. "It's a big airplane; it's a big model; you're making something that has to look the part. I've been here six years doing 40 to 50 hours a week every day while many of the others come in on a Wednesday or a Saturday because they have lives and they've got jobs. What they've accomplished is simply incredible."

Nothing left to chance

When it came to building this replica, the volunteers left nothing to chance and had one goal in mind; this Arrow had to be exact in every detail. When the answers to their questions couldn't be found in books or drawings, they turned to Allnutt for advice. "A lot of people said this would never happen but it's an eight-year overnight success story," explained a justly proud Paul Cabot, Manager/ Curator of the Toronto Aerospace Museum.

The original Arrow RL 203 reached a recorded speed of Mach 1.7 numerous times during its 13.5 hours of test flights. It was the only Arrow to carry a passenger when Spud Potocki flew with Red Darrah sitting in the weapons officer's seat to test the then-revolutionary 'fly by wire' flight control system (instead of using rods and cables to link the pilot's controls with actuators on the airplane, electronic signals sent through wires did the job).

The seventy-minute flight on February 19, 1959 was the 65th test flight of the program and the twelfth and last flight for RL 203. The entire programme was cancelled the next day. It was also the only Arrow to wear the 'Red Ensign' — then Canada's national flag — on its tail fin.

Allnutt worked on many aircraft in England for Hawker Aircraft as an Apprentice Fitter and in the Royal Air Force performing overhaul and maintenance on jets, before moving to Canada in 1956. Allnutt said the enthusiasm of the volunteers reminds him of the spirit of AVRO workers. "At that time it was wonderful just to be part of an organization like that," he recalled. "The people enjoyed their work and it showed because they just didn't go home." Goodison praised the Machinists at AVRO as the finest trade unionists he ever had the pleasure to work with and represent. "We didn't worry about overtime because we were so proud of what we were building, money wasn't the issue, and you stayed late because you cared."

As he admired the replica, Allnutt reflected back on the fate of the original. "Perhaps it was far too good for Canada. Imagine Canadians building something this good that was 10 to 15 years ahead of what the Americans had at the time. Maybe we were stepping a little too far out of our depth, you know." But then he paused for a moment and added, "When you think they designed this and then they designed the engine for it at the same time and they didn't have any prototype, it was built straight off the production line. AVRO put all of its eggs in one basket because the designers, the pilots and the workers were so confident it was going to fly, and when it did it was something to see. I was proud to be a part of it then and I'm proud to be part of this one."

Volunteers from the Toronto Aerospace Museum discuss the exact location for decals before their final application on the starboard side of the replica's fuselage. The goal was to make a model as close as possible to the original in every detail.