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AVIATION TRADER SEP 1997



Allan Jacksons Avro Arrow Lifesize replica Show Centre Abbotsford Airshow '97

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Makeover complete for Avro Arrow replica

KEITH GEREIN
Journal Staff Writer
WETASKIWIN

The cancellation of the Avro Arrow 40 years ago has been described as Canadian tragedy.

For Alan Jackson, it was a personal one.

As a young man studying aircraft design in the late 1950s, Jackson abandoned his schooling when the Canadian government abandoned the project.

"I just lost heart in aviation," he says. "It was a shame, because the plane was going to be an absolute dream."

But while his heart turned away, his head could never shake the image of the sleek, 24-metre fighter jet.

That's why decades later, in the hopes of recapturing a piece of Canadian history — or perhaps a piece of his own history — Jackson decided to construct a full-sized replica of the Arrow from his Wetaskiwin garage.

Originally completed in the 1990s, the model aircraft was unveiled for the second time Friday with a newly refurbished exterior. It will take the place of honour this summer at Wetaskiwin's Reynolds-Alberta Museum, inviting the public to imagine what might have been," says Byron Reynolds, the museum's aviation curator.

"It gives me shivers looking at it sitting there," he says.

The Avro Arrow plays an extremely important part in the story of Canadian aviation. It's the stuff of legend."

The original planes were dismantled and only pieces remain today, but Jackson's creation provides a rare opportunity to see what the aircraft looked like intact, Reynolds says. There is just one other full-scale replica



BRIAN GAVRILOFF, THE JOURNAL

Alan Jackson stands in front of a replica of the Avro Arrow he refurbished with the help of NAIT students and instructors.

in existence, which is in Toronto. The project has been described as a giant model airplane kit, but Jackson notes his efforts went far beyond plastic and glue.

At 24 metres in length, with a wingspan of 15 metres and weighing 8,200 kilograms, the life-size model had to be constructed in pieces, he says.

Further complicating things was the fact that Jackson's project came without instructions, forcing him to rely on photos and small-scale drawings to get the dimensions correct.

"I didn't sell my soul to make it, but the effort I put in was really intense," he says.

"I had extremely limited information combined with limited funds,

skills and facilities."

Starting with the nose section in 1989, the sales representative spent several winters in his garage working on different parts of the plane.

He was about 80 per cent done in 1997 when CBC offered to have the replica finished so it could be used for a miniseries on the Arrow.

After filming, the plane visited a number of air shows, then came back for display in Wetaskiwin. Over time, the travelling and weather ripped up the exterior, forcing the museum to pull it into storage.

There the plane sat until this year, when the museum decided the Arrow needed to be refurbished to mark the 100th anniversary of powered flight in Canada.

Under the gun to complete the massive project, Reynolds recruited a class of NAIT students and instructors in the aircraft skin and structure program.

"When we got to it in the hangar, it had lots of missing metal and lots of rotted wood," says Ryan Sears, 19, who put in 50 volunteer hours on the project and even recruited his dad to help.

"There were nails and screws sticking out. It was basically a big mess."

The NAIT students and other volunteers put in more than 700 hours "re-skinning" the sheet metal exterior from nose to tail. Many of them were on hand Friday to watch their work roll out of the hangar and into

public view.

"When we started, many of the students didn't know about the Avro Arrow, but once they did a little research, they all got excited to work on it," says Dave McIntosh, chair of the aircraft program.

The replica will be on display until Labour Day, then will be put back into storage to protect it, Reynolds says.

"People used to tell me I was nuts for doing this," Jackson says.

"It was only when it started coming together and people could see it was reality that I started getting some credibility."

"Now to see it back in a viewable state is just great."

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Outrageous **Fortune**

Cancelled 40 years ago, the Avro CF-105 Arrow interceptor was the Canadian counterpart of Britain's ill-fated TSR.2. Now, in an echo of history, a full-sized Arrow replica has been the victim of a similarly chequered career, as **JACK MEADOWS** reports

"The Arrow and Britain's TSR.2. were advanced designs, too far ahead of their time perhaps"



RIGHT The roll-out of the first Avro Canada Arrow at Malton, Ontario, on October 4, 1957.



ABOVE Newly unveiled at Abbotsford in 1997, the Avro Canada CF-105 Arrow replica stands in the setting sun with snow-capped Mount Baker (USA) in the background.

The evening of July 25, 1997, was bright and clear at British Columbia's Abbotsford Airport. Snow-capped mountains provided a traditional background, and with the sun low in the west the curtains of a large blue temporary hangar slowly drew back. The band played stirring 1950s music, and slowly there emerged a fantastic sight, the completed Avro Canada CF-105 Arrow; or rather a full-scale replica. It had been more than 40 years earlier, and 2,500 miles to the east, that the original had similarly first been unveiled to the public.

There are remarkable similarities in the history of the Arrow and Britain's BAC TSR.2. Both were advanced designs, too far ahead of their time perhaps. At first glance the appearance of the two aircraft is similar. Both had the inevitable teething troubles, and for varying reasons overran budgets by a horrifying amount. Both suffered from shortcomings or unavailability of promised ancillary equipment, notably engines, electronics and weapon systems. Each was flying successfully under test and meeting or exceeding all the designer's claims. Both faced the threat of cheaper American alternatives. Both promising projects were scrapped early in their flying life by

politicians frightened by the costs and impressed by the prevailing thought that strategy had changed and the days of manned aircraft were drawing to a close.

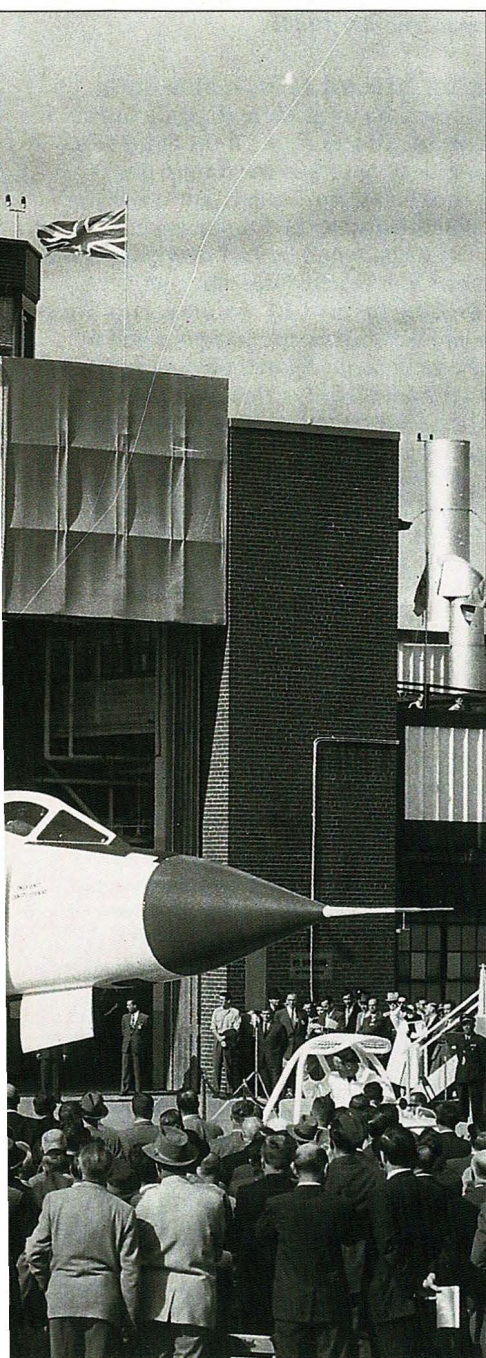
There were also major differences. The TSR.2, cancelled in 1965, was a strike aircraft. The earlier Arrow, in 1957, was a Mach 2.4 fighter designed to protect North America from Russian jet bombers coming in from the north. Ordered straight off the drawing board, it was a pioneer in many ways. It quickly gained serious interest from a number of other countries, and the American aviation industry was somewhat fearful of its competitive possibilities.

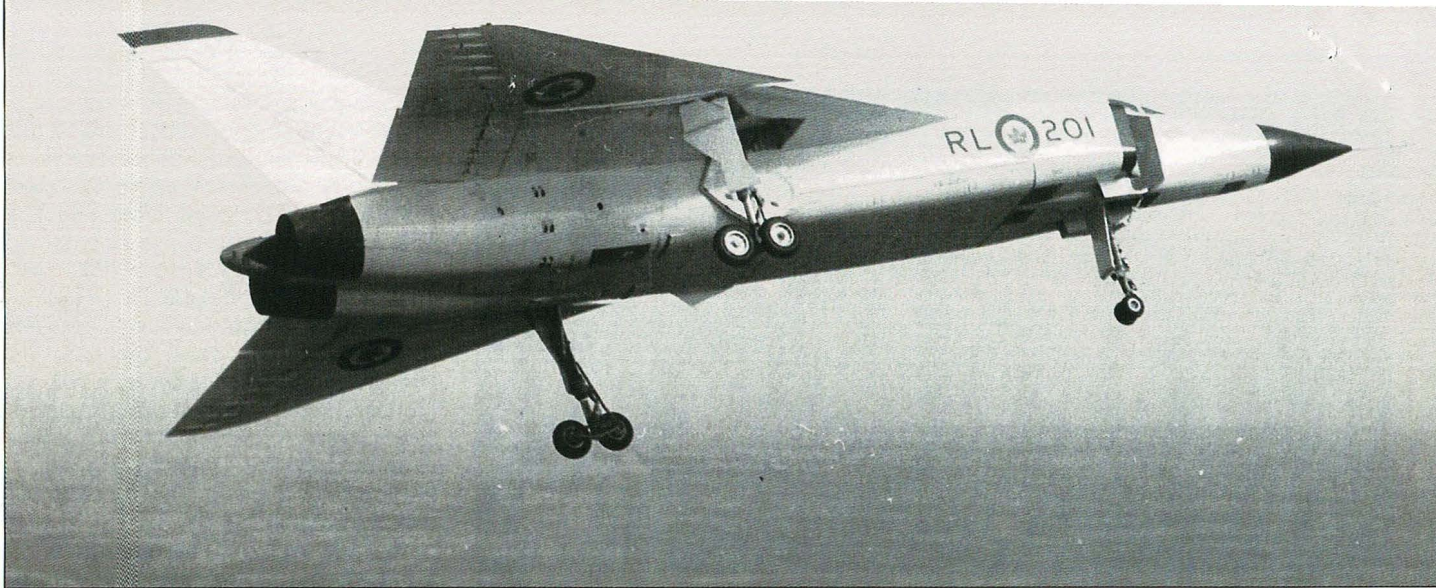
This may well have been partly in mind when America's President offered Canada free Boeing Bomarc missiles to do the job more quickly and easily, and thus considerably more cheaply. Such diplomatic pressure on top of (mistaken) strategic and economic arguments persuaded Prime Minister Diefenbaker of Canada to accept the Bomarc and take an axe — literally — to the wonderful Arrow. Ironically, the Bomarc proved to be a complete failure.

At least in the UK today the public can see a TSR.2. In Canada Diefenbaker ordained that every trace of the Arrow should be destroyed. Some say this was to satisfy the USA's aircraft industry, while others say it was to try to hide the shame of the dirty deed. Officially it was to prevent such advanced technology falling into Russian hands. So the six Arrows already completed, as well as all those under construction, were reduced to scrap. All parts, plans and associated paperwork were also completely destroyed.

This was the unforgivable crime. It is easy in retrospect to criticise any decision, to argue that it might have been a mistake. But it was inexcusable to destroy such beautiful and impressive work, and all the plans, in the hope it would all be forgotten. Another result was the breaking-up of a fine large design team. This was a catastrophic

BELOW The Arrow emerges slowly from its temporary Abbotsford hangar at its 1997 unveiling.





Full-size flying Arrow project launched

While Alan Jackson's replica awaits a new home, another full-scale replica project is under way — and this time the extraordinarily ambitious plan is to fly it.

Conceived by the Arrow Alliance, a growing organisation dedicated to reminding and inspiring Canadians that they can accomplish great things, the flying replica project is still in its very early stages.

In order to encourage sponsorship and promote public awareness of the CF-105 Arrow, the Alliance regularly attends trade and public exhibitions throughout Canada, where it displays a J-75 engine, a wooden Arrow simulator and other memorabilia associated with the programme. The organisation is due to exhibit its collection on the December 17–19 this year at the International Centre in Mississauga, Ontario.

Details of the Arrow Alliance may be found on its website at www.arrow-alliance.com. The site includes a wealth of information including the history of the Avro Arrow programme accompanied by some rare colour photographs and background information.

blow to Canada's aviation industry; many of the team took their skills and knowledge south to contribute to America's NASA and aviation successes. Diefenbaker would have been horrified to know the strength of feeling that still existed in the country 50 years later. Myth and mystique had joined with facts to turn the CF-105 Arrow into a legend, a cult.

In 1996 a Canadian Broadcasting Company documentary overplayed the issues, portraying Diefenbaker as more of an American pawn than was perhaps fair. However, its main theme was correct, though in any such dramatic presentation a purist always finds much to criticise. Playing a star role was a replica Arrow, without which the programme would have been a very poor show. Yet it was quite by accident that this star appeared at all.

In 1989, 62-year-old model aircraft enthusiast Alan Jackson of Wetaskiwin, Alberta (home of the Reynolds Aviation Museum), read a book about the Arrow and built a scale model. One thing led to another. He started to build full-size pieces of the real thing. First were the air intakes, each about 6ft x 3ft x 30ft, whose (then) revolutionary rectangular design has since become

standard for many aircraft. Next came the whole nose section and cockpit, some 28ft long and 10ft wide. Before he knew it he found himself working on a complete replica.

He was making a model 82ft 2in long, 21ft 3in high and, despite its almost bullet-like appearance, with a wingspan of 50ft. The frame was made with steel trusses obtained from the steel fabricating company for which he worked. Other parts, such as the undercarriage, had to be made entirely by hand. For example, each undercarriage leg was made from three concentric pipes. The first took him 35hr of fiddling and fitting; the others were much easier. As the project grew in size a friend provided a workshop big enough to handle it.

"It was not expensive", says Alan, although that must be relative. "It took me about 3,500hr of shop time — that is on top of all the other time spent thinking and planning." His only guide was a one-page plan from a book, and, of course, photographs. He drew no formal plans, just sketches, and then worked from a mock-up. Much later, when he heard that an original nose cone, undercarriage and some plans had somehow survived the scrap dealer and were now

ABOVE Jan Zurakowski made the maiden flight of the prototype Arrow at Malton on March 25, 1958.

in the National Aviation Museum at Ottawa, he went there to make some checks. He found that most of his work was dead accurate, maximum divergence being $\frac{1}{16}$ in. Later a pair of original wingtips also turned up on a farm.

In 1994, when he had nearly finished, news of it reached the film company working on the CBC documentary. They were daunted by the prospect, and by the estimated C\$1 million cost, of trying to produce a full-scale replica themselves. Instead, they offered to rent Jackson's Arrow, and finish it.

Unfortunately, the film company followed the script so closely that at the end they re-enacted the final scrapping scenes too literally. Once again chainsaws came into action. What was returned to Jackson in 1996 horrified him. He is trying to get compensation.

He spent some 200hr starting to put it together again. Then the Abbotsford International Air Show Society had the idea of displaying Jackson's replica Arrow at their 1997 annual air show and Airshow Canada, North America's

BELOW The author (left), with Alan Jackson (centre) and George Proulx, President of the Canadian Museum of Flight, pose in front of the Arrow.

AUTHOR



Avro Canada CF-105 Mk 1

Powerplant

Two 23,500lb-thrust Pratt & Whitney J-75-P-3

Dimensions

Wingspan	50ft
Length	82ft 2in
Height	21ft 3in

Weights

Empty	48,923lb
All-up	68,600lb

Performance (estimated)

Speed at sea level	805 m.p.h.
Speed at 40,000 ft	1186 m.p.h.
Rate of climb	39,000ft/min
Combat ceiling	50,000ft

aerospace trade show. How times have changed. The government allowed the Canadian Defence Force to offer a Lockheed Hercules to move the Arrow to Abbotsford. Unfortunately it was just too wide, so it made the 700-mile trip by road, arriving on July 1.

Just a mention of the Arrow in Canada unleashes a horde of enthusiasts. A team of more than 30 volunteers gathered at Abbotsford for the mammoth task of reassembling and refurbishing Jackson's replica in a temporary hangar. Among them were 15 from the Canadian Museum of Flight at nearby Langley, who postponed other much-needed work, and two Defence Forces technical corporals from the base at Comox.

So, just over three weeks later, and after another 3,200hr of work, Jackson's gleaming, pristine Arrow was unveiled to a specially invited audience. It was a moving and memorable occasion. There were many speeches of thanks and congratulations, including of course to Jackson himself. Two weeks later, at the show itself, it was a major attraction. How its designer and builders must have celebrated with the millions of other aficionados. Diefenaker, and his supporters of 40 years ago, must have writhed in their graves at the prospect.

A further indignity for the vandals

will come in about ten years' time at the hands of Doug Hyslip of Calgary, Alberta, whose 1/8-scale flying model of the Arrow was also used in the film. He has now assembled a team to produce a half-scale manned flying replica. Watch this space in about 2008 for its debut.

But back to late 1997: the full-scale replica was unveiled again, and it seemed that everyone would live happily ever after. However, the course of aircraft restoration and replication runs no more smoothly than that of true love.

It had been planned for the Arrow replica to stay at Abbotsford at least until the Airshow Society's 1998 show. That, as is now known (see *News*, March 1998 *Aeroplane*), was cancelled. Short-term housing was offered in the Tradex building, once home of the biennial Aerospace North America (previously Air Show Canada), the trade show which, as also reported earlier, will in future be held in central Vancouver.

The nearby Langley Canadian Museum of Flight badly wanted to capitalise on its own substantial contribution in man-hours to the rebirth, and to house it itself. Alan Jackson was in agreement. However, the museum had no funds to provide the extra covered

space for its existing collection, let alone for the Arrow.

In the end it had to be accepted that the Arrow must be returned to its owner. In late May 1998 the museum, with the Airshow Society, held a farewell day in the Tradex Building.

The next stage was shameful, if less so than those earlier occasions. For the museum then had to dismantle the homeless Arrow, this time with love

“Unfortunately, the film company followed the script so closely that at the end they re-enacted the final scrapping”

and care, load it on to three large trailers and ship it back to Alan Jackson at Wetaskiwin. There, presumably, it will remain in pieces until such time as a new home can be found where it can be displayed to the public once more. The Reynolds Wetaskiwin museum would seem an obvious home, but its new building is also already overflowing with exhibits.

The circumstances surrounding the Arrow are unique. Someone, somewhere, must realise its commercial potential, as well as its historical significance, and offer a proper home for this magnificent trophy.

RIGHT A three-view line drawing illustrates the futuristic lines of the Arrow. It was one of the largest fighters of its time.

BELOW The Arrow's large rectangular air intakes were revolutionary in the Fifties, as was the “notched” leading edge of the delta wing.

