Pre-Flight 10 YEARS!

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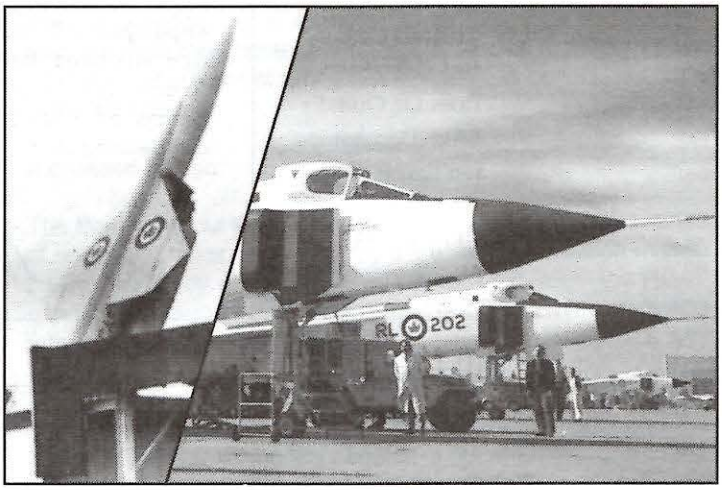
The Arrow Decision: Intimations of Disaster



Even after 40 years, the decision of Ottawa to kill the Arrow still rankles in the hearts and minds of not only those who were there but also those who are interested in the history of Canadian aerospace. Theories have been proposed, articles and books have been written, research has been undertaken. Yet the questions still remain. Why? By whom? Who has hidden documentation? Perhaps the questions will never be satisfactorily answered. Yet this need not deter anyone from finding the right questions, locating components, searching for lost parts, developing insights, and from continuing research. At the time, to the careful and astute observer of federal governmental behaviour, the signs of hesitation, uncertainty and even political vascillation were there. Drift back in time and read what Brent Raycroft, Ottawa Correspondent, wrote in the November 1958 issue of AIRCRAFT.

WHY did the Government do a flip-flop and decide not to order production of the Avro Arrow interceptor at this (1959) time? This remains the haunting question even after Prime Minister Diefenbaker's explanation on Sept. 23rd for the Government decision to buy American Bomarc anti-aircraft missiles and to postpone a final decision on the Arrow.

Rapid Strides: Mr. Diefenbaker questioned whether supersonic interceptors "will be required at all in the 1960's in view of the rapid strides being made in missiles by both the United States and Russia." He also said: "The preponderance of expert opinion is that by the 1960's manned aircraft, however outstanding, will be less effective in meeting the threat than previously expected." But this was not what Defence Minister G. R. Pearkes was saying in July when he told the Commons estimates committee: "There are important factors necessitating the continued use of manned interceptors in the air defense system for many years, indeed for as far as we can see into the future." Later, Mr. Pearkes said: "I am convinced, in my own mind, that an aircraft of the Arrow type will be required." And still later: "The Bomarc will not replace the manned interceptor."

Numbers Game: The Government was obviously appalled at the cost of the Arrow program. Mr. Diefenbaker said 100 Arrows with Astra and Sparrow would cost $1,250,000,000. Even without Astra and Sparrow, a single Arrow would cost $9,000,000. But the Government must have known about these costs ever since it had taken office last year. Mr. Pearkes tried to sell the Arrow to the U.S. Department of Defense. But he obviously knew before he went to Washington that the U.S. would not buy. Thus the only conclusion that can be drawn is that the Government does not want to cut non-military spending and that the only way it could forestall an increase in taxes was to reduce-or, at least, not to increase defence expenditures. It is true that the Arrow is not yet dead. But many in Ottawa think that the Government will kill it outright before next March.

(Cont'd on p. 2)

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FROM THE PRESIDENT

This is my last message to you as President. During my tenure as President of the Foundation, we have seen growth in membership, involvement in the community, and highlighted events within the Canadian aerospace industry, of which you, the members, can be justifiably proud. All of this was possible because of your unwavering moral and financial support, and the efforts of the Board of Directors. My personal thanks go to John Thompson, Secretary for the last two years, and to Bill Daniels, for his dedication to informing the public of the aims and objectives of the Foundation, while participating at all exhibits throughout the years.

As some of you may be aware, the Board of Directors of AHFC is elected at the Annual General Meeting. The Officers of the Board are appointed at the first Executive Meeting following the AGM.

As a result, your new President is now Ian Farrar, a longtime employee of Orenda and Board member of AHFC. Vice-Presidents are Michael Deschamp and Frank Harvey, while Al Sablatnig is Treasurer once more. I congratulate the new Officers and Board of Directors. I remain as Past-President, with duties of Membership Secretary.

Nicholas Doran

NICHOLAS DORAN

Decision, continued:

It is perhaps significant that unemployment normally reaches its peak in Canada early in March.

Friend or Foe? Officials say adoption of the Bomarc will make the vital reconnaissance problem more difficult. Final decision on launching of massive retaliation by the U.S. Strategic Air Command might depend upon positive identification of unknown aircraft in the Canadian air defence system. No missile can carry out such a task. Even Boeing Airplane Company, manufacturer of the Bomarc, says: "The unmanned military aircraft does not supplant the manned aircraft. No missile is yet capable of judgment, of reasoning."

The problem of identification was explained by Mr. Pearkes in July. He said: "The manned interceptor can be used in the identification role, whereas surface-to-air missiles cannot. Identification is one of the most difficult problems with which the air defence commander is faced. Even though there are certain limitations to the manned interceptor in this task, nevertheless, since the final and critical decision to launch massive retaliation may well depend upon a positive identification of a number of unknown aircraft in the system as 'hostiles', and since failure to launch our defensive and retaliatory forces in time could bring about a decisive defeat of unprecedented magnitude, the inclusion of manned interceptors able to assist in the problem of identification is essential.

"The supersonic manned interceptor is the development of a proven weapon, whereas the long-range surface-to-air missile is as yet untried. A bomber, carrying a man and subject to his control, may vary its tactics as circumstances demand in a manner which cannot be predicted. Thus the manned interceptor has a greater capability in the face of enemy counter measures than has the pure missile system."

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Decision, continued

Cause for Hesitation

Officials say they believe this may be one reason the Government has as yet reached no final decision on whether to order limited production of the Arrow. They say final cancellation of the Arrow program would leave the RCAF with no method of reconnaissance over northern Canada unless the subsonic CF-100 jets were kept in service beyond 1961. At the same time, defence authorities are expressing concern about what they describe as the three-year time gap in Canada's air defence system. Their concern arises from the fact that Canada will not procure any new air defence weapon between now and 1961.

No Replacement:

It has no direct connection with the Arrow-Bomarc decision because the Arrow would not be ready until 1961. Two Bomarc bases will be built in Ontario and Quebec-roughly on a line running from Sault Ste. Marie to Quebec City - but they won't be ready for operation until 1961. In the meantime, the main defensive weapon will continue to be the CF-100. One official says there will be tremendous pressure on the nine CF-100 squadrons in the next three years to keep training and efficiency at a constant peak . Besides the Bomarc, the Government will buy the SAGE system and install several new radar stations in the Pinetree chain. The two Bomarc sites will cost $164,000,000 and SAGE $100,000,000. There is no official estimate of the cost for the new radars. The U.S. is expected to share the cost of all three of these programs, bearing as much as two-thirds of the cost of the new radar. Mr Pearkes said Canada and the U.S. are negotiating on the possibility of producing the Bomarc in Canada. Officials in Ottawa do not hold out much real hope for this. But they do feel that arrangements will be worked out with the U.S. for Canadian industry to share in production of the new radar and SAGE equipment.

Early Start

The RCAF has been well prepared for years to swing into Bomarc action. It has been studying pilotless aircraft since 1946 and has been closely associated with the Bomarc development since 1949. It has at least 175 missile experts. This number will grow as engineers are shifted from the Astra and Sparrow programs.

The Air Force says the Bomarc is so sophisticated that two of the weapons will not attack a single target. Each missile will carry a code number so that it can be individually controlled by the master electronic system which will fire it automatically from its launching platform and guide it to the target. The supersonic Bomarc will operate in almost exactly the same way as the manned CF-100 currently functions in the air defence system. The big difference, of course, is that the Bomarc will carry out its task much more quickly and be able to climb much higher.

Radar will spot the targets just as it does now. The information will be collected, digested and funnelled to the two missile bases by electronic computers which will determine missile courses, firing times and points of interception. When the Bomarc is close enough to target, its own seeking device will take over from ground control.

The Human Touch:

The CF-100 operates in exactly this way except that the collection, digestion and dissemination of information gathered by radar now is done by humans instead of machines. Consequently, officials say, there will be no basic change in the RCAF's method of air defence operation. And because the Bomarc is a pilotless plane, no additional ground trades will be required. The present radar system is not a limiting factor in Bomarc operation because it has sufficient range to control the missile. Officials say possible jamming of the Bomarc's seeker is a problem but not an insuperable one.

Rate of serviceability is expected to be higher for the Bomarc than for a manned fighter. A rate of 70%--that is, seven of ten CF-100s operational at any given moment-- is considered good in the Air Force.

Increased Range:

The Bomarc about to go into service with the USAF has a range of some 200 miles. However, by the time the Canadian missile bases are ready construction is to start next year--the RCAF expects the range will have been increased to more than 400 miles. The longer--range weapon is now undergoing trials and will be powered by a solid propellant.

The Bomarc sites will be smaller than 100 acres each and the Bomarc probably will be launched from below ground level. The two Canadian sites will mesh with those in the northern U.S. and protect the Sault Ste. Marie/Quebec City/Windsor triangle, an area the U.S. could not completely cover.

The RCAF is reviewing nearl all its programs in light of the switch to Bomarc. These include air and ground crew manpower and training requirements, jet drone targets, and possible reduced need for all-jet training.

First units of the SAGE system are already on order.

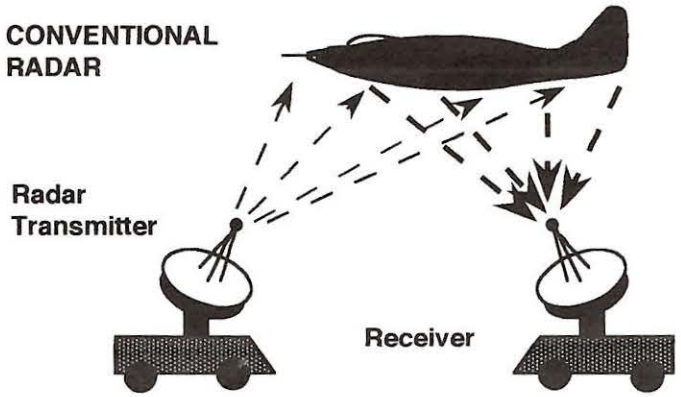
The Government gave the industry no forewarning that the Astra and Sparrow programs would be cancelled. Canadair says the company's missile team, built up since 1951, is being reassigned to other work.

Brent Raycraft offers the reader a clarifying glimpse into the operations of the government's thinking and decision procedures on the acquisition of the Bomarc system. How sad for Canada that it was distortedly short-sighted about the Arrow.

PF

Aerospace

SAFER SKIES



SSR does not transmit signals; instead, it collects radio and TV signals as they bounce off objects in the sky.

The highway rangers of our neighbours to the south know, as they train their radar in the hope of catching speeders on the freeways, that they in turn may be traced by radar detectors of the speeders. With traditional radar, a transponder emits a radio frequency energy pulse to detect objects, be they motor vehicles or aircraft. However, the radar site itself can be traced or "backtracked". In wartime, it can become a target. Lockheed Martin, with headquarters in Bethesda, Maryland, has done something about this radar downside. It is developing, successfully so far, "Silent Sentry Radar" which gathers FM and TV signals in the air to track aircraft, but without the need of a traceable transponder. Instead, a receiver and processors do all the work.

The skies are filled with commercial broadcast signals over most inhabited aread of the world, thus "illuminating" targets. Using passive coherent location (PCL) technology, targets can be located and tracked - military aircraft, heliocopters, missiles - all undetected. The computer from Silicon Graphics uses complex algorithms to rule out electronic debris and accurately display information to the radar operator. This ability is crucial to differrentiate, for example, between a 747 and an incoming ICBM.

Lockheed Martin says that SSR is capable of detecting and tracking at least 200 different targets up to a range of 200 kilometers, just like convential radar. SSR does it better; it updates almost instantaneously, whereas conventional radar takes several seconds.

There are two models of the SSR system, a rapid deployment and a stationary. So far, no precise price figures are available, but it probably will be several million dollars per unit, well worth the expenditure for what it does. The US military will find may uses for it, but other civilian applications could easily be found, especially in such areas as drug smuggling. SSR could also concomitantly be advantageously utilized alongside conventional radar.

VOLUNTEERS NEEDED !!!

AHFC has been offered a display booth in the "FLIGHT CENTRE" in the Automotive Building at the Canadian National Exhibition (CNE), *Aug. 20th to Sept. 6th* inclusive, from 10:00 am to 10:00 pm daily. This is an opportunity to promote AHFC and its projects. To accept this offer, we need 36 volunteers to staff two 6 hr. shifts daily, to help the AHFC Director on duty. Each volunteer will receive a pass for a car and driver for the day(s) involved. For more information or to volunteer, call John Hughes at (416) 741–5150 and, if possible, with your preferred date(s) and time(s). We need your help. Otherwise, we may have to pass up this opportunity to promote our association. Phone John soon, so we can accept this offer from the management of the CNE.

KEEP SELLING
those tickets for the
August 27, 1999 "Bermuda Trip" Draw!

Remember, each seller of a winning ticket receives a 15 X 20 "Three Arrows" print.

Stubs and unsold tickets must be returned by July 30, 1999.

For additional tickets, please phone John Hughes at (416) 741–5150.