



**BOMARC.** Two squadrons of Bomarc B's for bases in N. Ontario and Quebec.

## Family of Weapons Concept Key to Bomarc Decision

On the first count, the Air Force has never viewed Bomarc in other than the family of weapons concept, an assessment of capabilities which recognizes the advantages of an area defence missile system as part of Air Defence Command's firepower, without losing sight of the essential requirement for manned interceptors in the North American air defence complex.

On the Bomarc failures, it is now apparent that what were in fact normal teething troubles with a new weapons system of extremely advanced design were exaggerated out of all proportion as a result of attention focused on the program by the interceptor/missile debate referred to above. Further, from the Canadian point of view, the Bomarc as our only current missile acquisition was fair game for news desks throughout the country. The Bomarc has since come

through its test program in an extremely satisfactory fashion and is now building up a score of long-range hits on supersonic targets, an indication that it is as good a weapon as the RCAF's evaluation team thought it would be when the equipment decision was made.

The present Bomarc program for Canada calls for the establishment of two launching sites, one in the vicinity of North Bay, Ont. and another at La Macaza, Que.

The weapons to be supplied to the RCAF sites are the IM-99B version of the missile, which is specified with a kill range in excess of 400 miles. The missile is launched by solid fuel rockets which accelerate the vehicle until sufficient speed allows ram jet engines to cut in. It does its run to target area under guidance from the radar-system informed SAGE system, which is being incorporated into Can-

ada's Pine Tree radar network in conjunction with construction of the Bomarc bases. The missile makes its final run on target under guidance from a self-contained system independent of ground control.

The Bomarc is designed to carry either a conventional or a nuclear warhead. To date there has been no definite indication from government, which must make the final decision in connection with over-all policy on nuclear weapons, what warheads the Canadian missiles will carry.

Whatever the decision, it is obvious that Bomarc with a nuclear warhead is a much more effective weapon.

The precise date on which Canada's Bomarc squadrons will become operational is classified, but initial announcements on the program were to the effect that 1961 was the general target date. The program has been delayed slightly since that time, but not drastically.

### Training in Progress

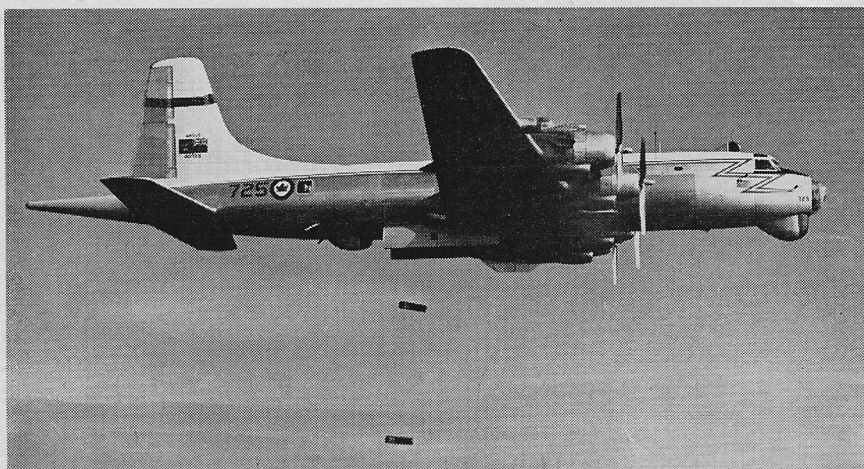
Training of a nucleus of technicians on the weapon and its related systems is now in progress. The training program is to be carried out in the United States.

At present eight RCAF personnel are taking the Bomarc courses. The basic trades involved are aero engine and airframe technicians, instrument and electrical technicians, armament system technicians, communications (ground) technicians and radar (air) technicians. To a large extent the Bomarc is being treated as any other weapons system with experienced personnel being given the special training required. The full complement of technicians to be trained for the Canadian bases is just over 80. Fully manned, the Canadian sites will require about 200 personnel — around 100 at each including technical and operations branches.

While Bomarc provides the rapid fire, area defence weapon which would be most suitable in repelling a concentrated stream of attackers type of assault, the manned interceptor is still the cornerstone of North American air defence. Key to the interceptor's crucial value in the system is the requirement for identification of targets picked up on the radar network.

Early, positive identification of an enemy assault force is fundamental to the West's nuclear deterrent strategy. The CF-100s now in service with





**CANADAIR ARGUS.** Deliveries of 33 to Maritime Air Command now completed.

## Finest Airborne Anti-Submarine Weapon in the World

Air Defence Command squadrons are still capable of carrying out the identification task with fair effectiveness, but it has been evident for some time that they are of limited value in this regard and are outdated as a weapons system.

There have been numerous indications that the government is making a serious effort to arrange for replacement of the CF-100s (the F-101 McDonnell Voodoo is the vehicle most frequently figuring in speculative reports), but there had been no firm decision at press time.

The manned interceptor's value does not end at the identification phase. There are a number of advantages, and critical ones, to the interceptor's capability as a weapons carrier. The most obvious is mobility. Aircraft can be deployed rapidly to meet attack from any quarter while missiles are limited to the area of coverage. The interceptor can also be used in a continuing battle, can conceivably engage more than one target on a single mission while the missile, unless it can be launched at an enemy formation, is a single-shot effort.

Each weapons system has its advantages in a particular situation. The re-equipment dilemma in this instance arises from the necessity to show a capability to deal with any type of attack.

### Argus Is Tops

"It is an extremely difficult problem, anti-submarine warfare. But we have in the Argus what is without a doubt the finest sub hunter-killer aircraft system in the world. Putting this machine and its weapons into service has brought us a long way down the road."

That is one ranking RCAF officer's

evaluation of introduction of Canadair's CL-28 Argus into service with Maritime Air Command squadrons. It is an opinion widely shared.

Maritime Command took delivery of its 33rd Argus in September of last year. They are now in service with 404 and 405 Squadrons based at Greenwood, Nova Scotia.

Teamwork is the key to success in airborne anti-submarine warfare Argus style. Each aircraft carries a 15-member crew of specialists who have at their disposal what is thought to be the most advanced submarine detection and attack system in existence, plus a complex of navigational aids which ensure pinpoint positioning throughout extended overwater patrols.

A rundown on some of the equipment carried by the Argus is indicative of the system capability:

- Electronic Countermeasures Radar

— detects emissions of radar sets operating in the area and positions source;

- Radar — Argus equipment gets extreme range at altitude, is designed to detect objects as small as a submarine's snorkel tube only inches above the surface of the water;

- Sonobuoys — listening devices dropped in a pattern on the surface of the water in an area of suspected submarine activity can provide a position fix through comparison of signals received from individual buoys;

- Julie Explosive Echo Ranging — used in conjunction with sonobuoys, a small explosive charge dropped in the water sets up an echo from a submarine which may have cut engines to avoid sonobuoy detection;

- Air Navigation and Tactical Control System — integrates and correlates information from all detection systems making for a more certain fix on the submarine position and then acts as a guidance system to the enemy position for launching of an attack.

As complete and advanced as the above system sounds, Air Force spokesmen feel that one of the big advantages of the Argus is its capacity for system improvement.

The Argus is one of the few aircraft in the world that has been specifically engineered for its anti-submarine role. A derivative of the Bristol Britannia series, it was redesigned to its Maritime Air Command specifications by Canadair, has already established endurance records on patrol.

In addition to the Argus, Maritime Air Command also retains in service its Lockheed Neptunes which have recently been modified to give extended life.

A veteran type, which recently



**GRUMMAN ALBATROSS.** Ten of these being supplied for Transport Command.