Canadair Missile Lab

Canadair Ltd. has begun construction of a $1 million environmental laboratory as part of its missile program. The facility will be a part of Plant No. 4, all of which is being allotted to missile development and production, and will come under the supervision of R. D. Richmond, the company's chief engineer for special weapons.

The company is already engaged, as co-ordinating contractor, in the production of Sparrow 2 air-to-air missiles which are to arm the RCAF's Air Defence Command in NORAD operations.

The new laboratory will reproduce the conditions of extreme temperatures, high altitude, shock, vibration, atmospheric dust and humidity which missiles encounter in service.

Among the initial equipment to be installed will be a centrifuge, 24 feet in diameter, for acceleration testing. There will be a walk-in temperature, altitude and humidity chamber which will reproduce conditions at 120,000 feet altitude and—100°F. An electro-mechanical vibrator capable of exerting a force of 5000 pounds is also planned. Specially designed instrumentation will record the results of tests in each case.

Duty Bound

The Department of National Revenue has ruled that guided missiles are not aircraft and so "are dutiable under tariff item 441 at 22½% ad valorem, under the most-favored-nation tariff."

The Department has further ruled that "parts of guided missiles are dutiable according to the component material of chief value of which they are manufactured, the finish thereon or according to their nature.

"Equipment permanently incorporated into aircraft for use in conjunction with guided missiles is classified under tariff item 440p(1), 440p(2) or 440r, depending on its nature and whether or not it is of a type or size made in Canada. Articles specifically provided for in the customs tariff and which are not mentioned by name in tariff item 440r are dutiable under their specific provision."

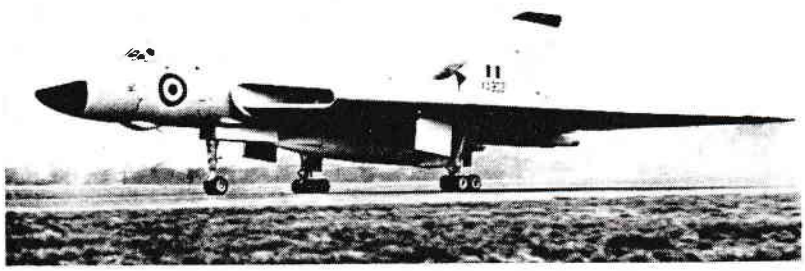
A Matter of Definition

The AITA's customs tariff committee is taking exception to the Department of National Revenue's recent ruling that guided missiles are not aircraft and therefore will be assessed for duty under the ammunition tariff item (see preceding report, "Duty Bound").

The committee feels that a missile, regardless of what it carries, should be considered an aircraft. To back up this opinion reference was made to the DoT's definition of what an aircraft is, as laid down in air regulations under the Aeronautics Act.

In addition, the committee quoted an engineering definition which states that . . . "air vehicles exist in many forms. They may be manned or unmanned aircraft, robot piloted rocket or missile aircraft or other remotely manned drones, rockets, missiles or automatically piloted devices.

"They all may have much in common in subsystems and component hardware. Much of the electrical and mechanical essentials are similar in design and items are interchangeable in various crafts. Many requirements are the same for the equipment's airframe and propulsion systems, auxiliary power supplies, navigation, computing, stabilization and control systems."



POWER GUIDED BOMB: The first official photograph released by the British Air Ministry shows the power guided bomb developed by the A. V. Roe for use with Britain's V-Class bombers. The bomb is seen here slung under the fuselage of a four-engine delta-wing Vulcan belonging to the RAF Bomber Command. Flight trials are presently underway.

What Price Missiles?

According to the USAF Air Materiel Command's deputy director, Maj. Gen. W. T. Thurman, the American public is paying more than $1.3 billion annually for airframes, engines, nose cones and guidance systems for missiles. This breaks down to the cost per day of $3 million, which is distributed to some 15 major contractors, and to about 60 smaller but also prime contractors who handle the research and development of new fuels and design smaller and smaller subsystems for missiles.

Said Thurman: "Better organization and management of weapon systems to compress time is a prerequisite for successful completion of the ballistic missile program."

New facilities for this program are already on the way at a cost of more than $320 million. This work is being financed between the USAF and the industry, with the air force paying $195 million and industry $125 million.

Chemicals for Rockets

A discussion of fuels for rocket propulsion systems was the subject of a paper titled "Rockets and Missiles as a Market for Chemicals in Canada", by R. F. Wilkinson and L. A. Dickinson of the Canadian Armament Research & Development Establishment. The paper was read before the recent annual conference of the Chemical Institute of Canada, held this year at Toronto.

Among the remarks contained in the paper:

- "The increasing emphasis placed on supersonic guided missiles in defence plans suggests that rocket fuels are potentially a volume outlet for chemical raw materials. . ."
- "Solid propellant engines [which are logistically the most desirable, are] generally more reliable than the complex liquid propellant engines. In addition, they are an obvious choice for anti-ballistic missile systems which would receive a tactical alert of only a few minutes for target selection and destruction. . ."
- "Performance [of rocket fuel] is