*The Evolution of*

# AIR MATERIEL COMMAND

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**I spent the first 22 years of my RCAF career in a variety of operational and staff appointments far removed from Air Materiel Command or its forbears. The four years I have since passed within AMC itself have been fascinating years of discovery. It is mostly having in mind our RCAF personnel who have never served a tour in AMC that I am composing this article at the request of The Roundel.**

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Air Materiel Command Headquarters, Rockcliffe, Ont.

Expressed in the most modern terms, the role of AMC is to accomplish, with utmost economy, an adequate materiel logistic support of the RCAF's operating and training commands, i.e. of the stations and other units which comprise them. In tabloid form, we in AMC express it as "the right thing in the right place at the right time—with utmost economy".

It is the US Armed Forces who, from the old French term "logistique', have in recent years developed highly for the West both the art of logistics and the meanings the term now generally conveys. One trend is that whereas 'logistics' used to convey also the idea of food and quarters it now tends, unless qualified, to denote material goods and services.

In US practice the four broad fields which are combined to produce a logistics organization are maintenance, supply, transportation and procurement. It has been RCAF practice, so far, to regard transportation as an element of supply; and thus logistics to be the product of grouping maintenance, supply and procurement into a package under one head.

The RCAF, however, has only a limited though essential part to play in procurement. In 1921 there was a technical directorate in the Air Board which conducted air force engineering, supply and procurement. The responsibilities for contracts and purchasing were transferred in 1923 to a director of contracts outside the air force. The only parts of the procurement function which have remained with the RCAF have been provisioning and quality control. Provisioning is the computing, specifying and budgeting for what the procuring agency is to procure; quality control is the inspection and other technical precautions to ensure that the specifications have been met before the materiel is accepted into RCAF inventory and paid for.

Because logistics comprises maintenance, supply and procurement it will be apparent that it is anything but a function exclusive to AMC. Almost every component of the RCAF from AFHQ downwards and outwards is also engaged in some or all elements of logistics. It will be obvious, then, that AMC's role is distinctive not so much because almost its entire pre-occupation is with logistics as that the *portion* of RCAF logistics which AMC performs is distinct.

To generalize, it can be said that what AMC does is too specialized and complex technically for the operating and training commands to do without deflecting them unduly from their main roles; and too much an "operating" function for AFHQ to be involved in without vitiating AFHQ's duty of thinking out and providing policy guidance to the field.

Air Materiel Command was born out of Maintenance Command merely by changing the latter's name. Maintenance Command came into being in 1945 by the creation of a new unit—one eventually to become its largest, namely Maintenance Command Headquarters—through withdrawing from

AFHQ not only the major portion of the detailed responsibilities for maintenance engineering, supply administration, materiel provisioning and direct control of all the specialized logistics units then existing, but also most of the actual personnel who had been performing these functions at AFHQ; and by grouping all the specialized logistics units in the RCAF under the command and control of the MCHQ thus fashioned. It will therefore be obvious that to trace the maturing of the RCAF towards the formation of Maintenance Command, it will be necessary to review both the previous history of the pertinent elements of AFHQ as well as of the types of units which eventually came under the control of MCHQ. Let us first examine the types of units.

The first purely logistics unit of the Air Force in Canada precedes the RCAF. It was an (un-named) Air Stores Park of the Canadian Air Force (CAF) located at Camp Borden about 1921. Little seems to be recorded about it except that it burned down early in 1923. The place where it stood can still be seen in the form of a rather large concrete-paved gap near the north end of the old line of Besserer hangars at Camp Borden.

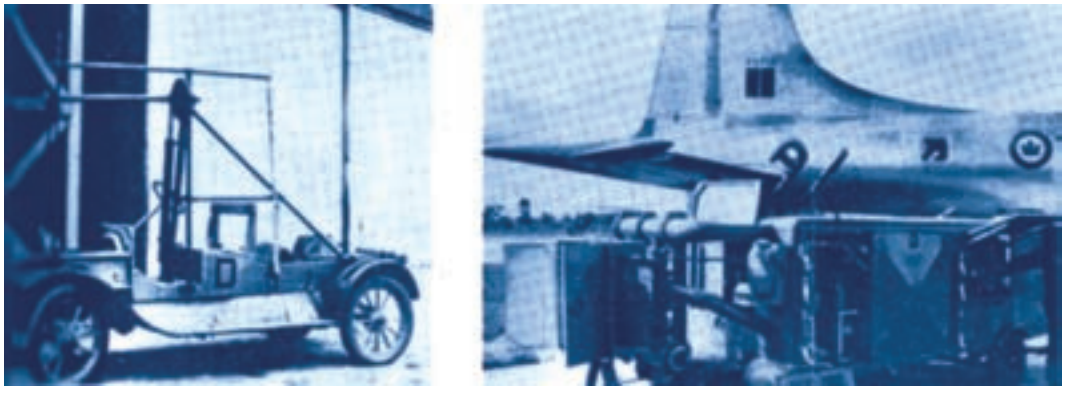
This fire apparently induced the CAF in 1923 to take over from the Department of Public Works a site on Victoria Island in Ottawa, which had been successively a mica factory, carbide plant and boatyard; and there to establish what became the RCAF's No. 1 (Aircraft) Depot.

It is interesting to note that the RCAF's first logistics unit was a Depot; and that it was both a Repair and Supply Depot. Its terms of reference read:

1. Repair all aeronautical equipment which could not be undertaken by other Air Force stations, and,

2. Receipt of technical stores off contract, and issue of same to all Air Force stations. Reference 1, above, is even today a fairly accurate statement of the role (and the relation to the maintenance work done by RCAF stations) of AMC's No. 6 Repair Depot at Trenton and repair contractors. The precise extent of "repair . . . which could not be undertaken by . . . stations" has changed with the years and circumstances, but the *spirit* has remained the same. This is that the main purpose of squadrons and sections on stations is to operate equipments rather than to maintain them. Thus front line or "first line" maintenance is, in principle, confined to such processes as servicing, testing by operating, minor inspections, simple repairs-by-replacements, etc., of the aeroplanes, vehicles, radars, kitchen equipment and so on which they may be operating. The "second line" or station level is more complex, requires more costly and specialized tools, test equipments and personnel, and takes longer. In principle it comprises such things as major inspections, repair-by-replacement of major components, embodiment of moderately complex modification kits, simple repair-by-rebuild and the like. The "third line" or "depot level" maintenance is so complex as to require returning the equipment to AMC for major repair, modification, rebuild, etc; and having it replaced at the station by equipment which is in running condition.

**Engine starters—then and now. On the left is a Huck starter at Camp Borden Air Stores Park in 1922. On the right is an Argus starter unit in 1962.**



Reference 2, above, is also still a fairly accurate statement of the role of AMC's supply depots, although there have been changes. No. 1 Depot did not receive or stock other than technical spares. The few RCAF stations then existing made demands for their barracks equipment, clothing, motor transport and such on the nearest Army Ordnance Depot. It was not until about 1939 that the RCAF began to stock and issue such equipment through its own provisioning. Another change is that AMC's supply depots issue spare parts not only to RCAF stations but also to repair depots and repair contractors for embodiment into RCAF materiel being repaired. From 1923 to 1936 No. 1 (Aircraft) Depot remained the sole permanent wholly-logistics unit of the RCAF. In 1936 the first supply depot, No 2 (Equipment) Depot, was formed at Winnipeg. In 1937 the first repair depot, No. 3 (Repair) Depot, came into being at Vancouver.

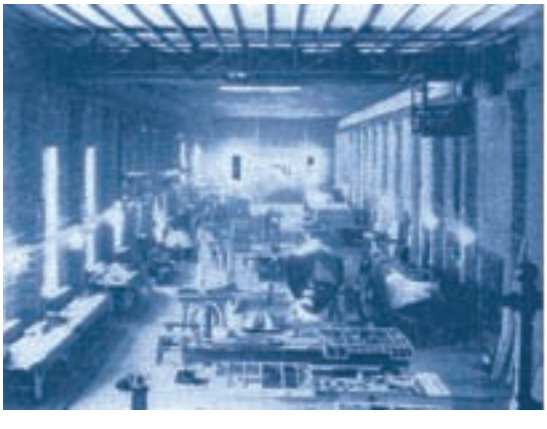
The RCAF's repair contractors are commercial firms, the first of which entered into contract in the early 1920s. Their number grew steadily through the late '20s and the '30s; and since World War II they have displaced all but one of the RCAF's repair depots. The intimate and detailed planning, control and surveillance which AMCHQ must exercise over the RCAF materiel entering and leaving their plants, and over operations within them, is very similar to that applied to AMC's own units. Among the 103 different companies which now have contracts for repairing our materiel are many who have been thus engaged continuously for decades—so long that they have become in many ways a part of the AMC "family of units".

The emergence in growing quantities of companies having production or repair contracts with the RCAF was the cause of bringing into being two additional types of logistics units-to-be in AMC. One was what is now our Materiel Laboratory; the other our Technical Services Units.

Late in 1927 an aeronautical inspection Test House was set up as a separate element of No. 1 (Aircraft) Depot. Its purpose was to preside over the inspection of all military aircraft construction and maintenance with the Test House having a master gauge section and other devices to enable verification of the quality of the materiels and their processings. After a varied history of locations and names it became an element in Maintenance Command in 1945 and a full-fledged unit of AMC in late 1954. The present roles of the Materiel Laboratory are directed more towards assessing the capabilities and performances of the laboratories of companies having production or repair contracts than in the direct sampling of those companies' materiel. Our laboratory also does, or arranges to have done at other specialized government laboratories, "arisings" from within the RCAF itself which require analyses.

By 1938 the amount of production and repair for the RCAF had so grown in volume that it was decided to set up RCAF units in the areas where contractors were most concentrated in order that technically experienced RCAF personnel could assist the contractors in interpreting specifications, report technical progress back to AFHQ, inspect the quality of work as

**Repair shops—then and now. On the left, an interior view of No. 1 Aircraft Depot, Victoria Island, in the mid-1920s. On the right, aircraft repair shop at No. 6 RD,Trenton, today.**



Launching a Vickers Viking at Montreal on 25 July 1923. Canadian Vickers, Ltd. was one of the first of many civilian firms to handle RCAF repair and overhaul contracts.

At the launching were (1.) F/L (later A/C) A. L. Johnson, RCAF resident inspector; (2) W/C (later A/V/M) E. W. Stedman, RCAF acting director; (3) Mr. Desbartes, deputy minister of national defence; (4) Mr. A. R. Gillham, managing director of Canadian Vickers, Ltd.; (5) S/L (later A/M) G. O. Johnson, RCAF headquarters staff officer; (6) Brig. (later Lt. Gen.) A. L. McNaughton, director of training.

it progressed, safeguard the Crown in RCAF materiel being supplied to the contractor, etc. The first such unit, No. 11 (Technical) Detachment, was formed in Montreal in 1938 and shortly after No. 12 TD was formed in Toronto. During the war this type of unit was re-named "Aeronautical Inspection District" and is now known as "Technical Services Unit".

Until the mid-1930s the RCAF stock of ammunition and bombs was tiny. But the rise of Hitler accelerated the RCAF towards a more military posture. Among other steps it brought into being in 1938 the first RCAF explosives depot, No. 21 (Magazine) 226 Detachment [*sic*]at Kamloops B.C. These depots combined the roles of a repair and a supply depot but, of course, for explosives only.

During the war years four additional kinds of units which still are represented in AMC came into being. The decision to transfer the responsibility for receipt, custody and issue of publications, forms and stationery from DND's Printing and Stationery Branch direct to the RCAF caused No. 1 (Publications and Forms) Store to be formed at Victoria Island in April 1941. Today its descendant, now at Rockcliffe, is called No. 3 (Supply) Depot, even though its role and stock-in-trade are unchanged.

As the volume of aircraft production and repair and opening of new RCAF stations, schools, and repair depots rose so did the need for a unit to conduct the specialized role of ferrying aircraft. Accordingly in January 1942, No. 124 (Ferry) Squadron was formed at Rockcliffe under the direct control of AFHQ. Responsibility for aircraft acceptance and ferry operations was transferred to AMC in January 1949. Our No. 129 (A&F) Unit formed in February 1953 now performs this role.

The huge construction program, much of it in quite remote areas, compelled the RCAF to undertake certain portions itself, using men in uniform. The major role of the Construction and Maintenance Units which grew out of this need was to carry out actual construction or major maintenance where civilian contractors were not practicable; and to administer contracts where they were. The first to become established was No. 9 CMU at Vancouver in July 1942. The only RCAF CMU which remains in AMC today had its name changed just a few weeks ago to No. 1 Construction Engineering Unit to reflect a greater emphasis on engineering.

From the early months of the war onwards the RCAF received increasing amounts of materiel by way of the US Army Air Forces and the US Navy; and by the fifth year it became necessary for AFHQ to provide focal points for close-to-hand liaison with the US agencies concerned. Thus in August 1944 No. 1 (Requirements) Detachment was established at the HQ of the USAAF's Air Services Command—the direct parent of the later USAF AMC, and recently re-named Air Force Logistics Command—near Dayton, Ohio; and a second at the US Navy's Air Stores Depot in Philadelphia. Today they are called Requirements Units.

As World War II drew towards a close the physical management of the vast stocks of materiel which had been accumulated became a major problem. Accordingly Reserve Equipment Holding Units (and satellites) for storing aircraft and vehicles, and Surplus Equipment Holding Units (and satellites) for other materiel were located on many of the flying stations from which aircrew training was withdrawn. There was a peak of 23 such units in 1945/46. The REMUs later became called Storage Sites. There are still five in AMC today: Lethbridge, Alta; Macdonald, Man; and Mountain View, Dunnville and Picton, Ont.

In the late 1940s RCAF activity in the Arctic increased, largely through the mapping and joint weather station programs. Each summer AMCHQ sent a detachment to Montreal to marshal and ship the freight being assembled from various sources for these remote stations. When the RCAF's European Air Division began build-up, the detachment was employed year-round. Therefore, in 1952 No. 1 Materiel Movements Unit was organized in Montreal. In 1955 its name was changed to No, 4 Movements Unit (Materiel).

This completes our quick review of the times and circumstances which brought into being each of the types of field units which are fully organic to present-day AMC.

Let us now look at the origins of Maintenance Command Headquarters. To do so we must delve into the beginnings and growths of the pertinent technical staffs at AFHQ.

As already mentioned, the history of technical staffs in the RCAF began in 1921, with the technical directorate of the Air Board located in Ottawa. This directorate consisted of a technical section and a stores section, and in 1932 was named the directorate of aeronautical engineering, its two components becoming branches. In 1936 a signals section was established with the AE branch of this directorate; in 1937 a works and building section was formed within the supply branch; and in 1938 an armament section within DAE. In November 1938 the directorate gained the new status of division with the title of aeronautical engineering and supply division, and its two directorates became subdivisions. In May 1939 works and buildings also became a directorate and that September the three main components of logistics appeared together, as staff entities for the first time. They were formed with the supply subdivision with the status of directorates and the titles of procurement, equipment administration and equipment maintenance, respectively.

In November 1940 the two subdivisions were each raised to division status and two years later the works and buildings directorate gained the same AFHQ staff rank. By November 1944, in line with the general contraction being applied to the RCAF, the aeronautical engineering, supply and construction engineering divisions were merged, together with the organization division, all as sub-divisions under a single Air Member (AMSO).

At least one each of most of the types of field units which now comprise AMC had been created before or early in the war. Because all of them were controlled directly from AFHQ, their effect was to involve AFHQ's staffs deeply

AIR MATERIEL COMMAND UNITS

*Supply Depots*
1 SD, RCAF Stn. Downsview, Ont.
3 SD, RCAF Stn. Rockcliffe, Ont.
5 SD, Moncton, N.B.
7 SD, Namao, Alta.

*Repair Depots*
6 RD, Trenton, Ont.

*Stations*
RCAF Stn. Rockcliffe, Ont.
RCAF Stn. Lincoln Park, Calgary, Alta.

*Requirements Units*
1 RqU, Wright Patterson AFB, Dayton, Ohio
2 RqU, Philadelphia, Pa.

*Technical Services Units*
10 TSU, Calgary, Alta.
11 TSU, Montreal, Que.
12 TSU, Toronto (Weston), Ont.

*National Defence Medical Centre, Ottawa.*

*Materiel Laboratory, Rockcliffe.*

No. 11 Technical Services Unit, Montreal, Que., is the oldest logistics unit still existing in the RCAF.

in the detail of technical and supply operations; and thus to generate large staffs. Although administrative control at least of the depots and CMUs was later decentralized to the six air commands, AFHQ was unable to relegate functional control except by forming some appropriate sort of functional command — a step considered too disruptive to be ventured during the mid-war years. But by July 1945 the pressures to form a Maintenance Command Headquarters were intense, partly to help achieve a sizeable reduction in the physical size of AFHQ and partly to help free AFHQ's hands of much detail in the immense task which lay ahead in the transition of materiel management from all-out war and huge, precipitously-assembled inventories of materiel back to a peacetime air force — then planned by the government to be a mere 14,000 in personnel and eight squadrons. AFHQ wished to devote as much of its energies as possible to policies and planning for the post-war period. Intentions in the technical field had taken shape. They were to retain at AFHQ the management of design, development and procurement of major equipment and capital plant and to decentralize to Maintenance Command the provisioning and supplying of technical instructions, spares and other direct and indirect support materiel to the other commands which would enable them to do their own first and second-line maintenance; managing and performing the RCAF's third-line maintenance; inspecting and accepting all contract materiel into the RCAF's inventory; and operating for the RCAF its third-line (or wholesale level) supply system.

To this end first an R&D Division was created at AFHQ in May 1945 from AE elements in the AMSO Division, and preparations were then begun to form MCHQ by extracting and transferring the majority of the remaining technical elements from AMSO. Thus when MCHQ was established its principal functional staffs were maintenance engineering, construction engineering and supply.

Maintenance Command was established to become effective 6 August 1945—the same date the first atomic bomb was dropped on Hiroshima. I think the latter event got a wider notice.

The first day MCHQ officially functioned was on 1 Oct. 45. It had required the intervening period to rehabilitate wartime buildings at Uplands, to make and implement detailed organization establishment and procedural decisions, and to segregate and shift the appropriate elements of the various AFHQ staffs and voluminous records from their longtime AFHQ offices.

Engine test stands—then and now. On the left is a test stand of the early 1920s. On the right an engine is tested on a mobile stand, nicknamed "Oscar", at No. 6 RD, Trenton.

Maintenance Command moved to No. 8 Temporary Building, in downtown Ottawa, on 1 April 1947. Exactly two years later Maintenance Command was re-named Air Materiel Command and, on 1 September 1954, AMC moved to its present location at Rockcliffe. It would appear, therefore, that AMC can rightfully claim to be not only the RCAF's oldest *functional* command continuously extant as such but also the RCAF's oldest command, in original terms of reference.

*(In a later issue A/V/M Annis will trace the evolution of AMC's logistics management techniques and examine their future.—Editor.)*

No. 7 Supply Depot, Namao, Alta.

## List of Abbreviations

| | |
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| A&F | Acceptance and ferry |
| AFHQ | Air formation headquarters |
| AMC | Air Material Command |
| AMCHQ | Air Material Command Headquarters |
| AMSO | Aircraft Maintenance Support Officer |
| CAF | Canadian Air Force |
| DND | Department of National Defence |
| MCHQ | Maritime coastal headquarters |
| R&D | Research and development |
| RCAF | Royal Canadian Air Force |
| USAAF | United States Army Air Force |
| USAF AMC | United States Air Force Air Material Command |