



# *The Workhorses of Aviation*

*by Roger Beebe*

*A Terr Air Helicopters' Hughes 500D out of Lac La Biche Alberta at a forest-fire base camp at the Cold Lake Air Weapons Range (CLAWR) in the late 1970s. Photo: B. Petite*

## **Encounters and experience**

Throughout my aviation career I have been fascinated by helicopters, although my background is mostly with fixed-wing aircraft. I am always amazed at the skill demonstrated by helicopter pilots, who operate in many challenging and difficult environments, backed by skilled aircraft maintenance engineers (AMEs) and technicians who must cope with demanding maintenance requirements. In both military and civilian use, helicopters fly in some of the most demanding situations imaginable: in mountainous regions and deserts, in high winds over land and water, from ships and oil rigs, or from remote and sometimes dangerous bases.

My first close encounter with helicopters was at 1 Wing Marville, France in 1965 when a Sikorsky S-58 caught fire and burned during start-up. The crew escaped safely but all that was left after the fire was the engine, an old radial and the main blade tips. I never forgot that incident because the destruction happened so fast.

My next experience with helicopters was in my air force days with 434 Squadron as part of Mobile Command, when I rode out to the Cold Lake Weapons Range on a Labrador. It was memorable because we had to set down to drain gasoline from some snowmobiles we were hauling out to the Army. The snowmobiles had been filled with gasoline and were venting inside the helicopter fuselage.

At Transport Canada I helped facilitate the move of Bell Helicopters Textron from Texas to Québec in the early 1980's. To help accomplish this I was given a helicopter familiarization course with a lot of information on helicopter theory of flight and some limited flying training.

During my Transport Canada career I also had the privilege of working with many fine helicopter flight test pilots, AMEs and technicians, as well as with helicopter manufacturers and approved maintenance organizations (AMOs). It was the fixed-wing aircraft issues, however, that seemed to

dominate the day, mainly because it was the large and highly visible fixed-wing air carriers that created the daily regulatory and political issues that needed urgent attention. In my opinion, this fact works against the recognition of the vital role played by the Canadian helicopter industry in its day to day operations across Canada.

### **Helicopter AME and Technician Development**

Most early helicopter technicians had their start in the military. At one time all three armed services operated helicopters in Canada and overseas. Today, I believe, all helicopters in the Canadian Forces are operated by air force personnel.

Community colleges have now instituted helicopter training courses for both flight and maintenance. I would suggest that today most helicopter technicians come from that source.

Before the current M1 and M2 category AME licensing system, there was an independent "R" category (R for rotorcraft). In my opinion, the R category licence served us well during that period. However, in the 1990s the system was changed to today's model, which includes helicopters and fixed wing in the same M1 and M2 categories. Today's system

still does require type training at Approved Maintenance Organizations (AMOs).

### **Some Canadian Helicopter History**

Canadian helicopter history goes back to early experiments before the First World War. There was some experimentation in British Columbia in the 1930s and the Royal Canadian Navy flew Sikorsky R4s during World War II. Before unification as the Canadian Armed Forces, the army, air force and navy, were all independently operating helicopters. Some of the types then operated were Hilliers, Labradors, and Hueys. Canadian legacy companies that laid the framework for the industry in the east were Dominion (King City), Spartan Helicopters (Ottawa); and, Universal (Carp); and, in the west, Okanagan (Vancouver), Foothills Klondike-Kenting (Calgary). There were also many smaller operators such as Skyrotors, Niagara, Bow Valley, Atlantic, Viking, TNTA, and another dozen or so that eventually formed the basis of larger entities through merger or acquisition. One of Canada's largest helicopter operators, which began in BC in 1947 is now Canadian Helicopter Corporation (CHC) and has worldwide operations.



*Right: An Aero Arctic Helicopters' turbine Sikorsky S 55T out of Yellowknife, NT at the scene of a forest fire south of Grande Prairie, Alberta in the mid-1970s. Photo: B. Petite*

A Bow Helicopters' Bell 204B CF-BWR out of Calgary, Alberta at the site of a forest fire northeast of Slave Lake, Alberta in 1972. The CF-BWR was the first commercial Bell 204 model in Canada.

Photo: B. Petite



The introduction of turbine power in helicopters in the 1970s revolutionized operational capabilities. Piston engines, regardless of how refined, are limited in power compared to gas turbines. The increased power not only enabled larger payloads but also allowed greater electrical generation, heat and air conditioning capabilities. Larger loads can include fuel, so range capability was greatly increased. Since then, helicopters have flown many very-long-range operations in search-and-rescue and military missions. Additional electrical generation capability has also permitted new systems, such as powerful search lights for use in crime fighting. New structural designs and use of lighter weight composite materials in construction have also improved performance.

### **Today's workhorses**

Today, Canada's civil and military helicopter industry is as vital as ever. In November 2008, Canada sent eight specially modified CH-146 Griffons utility helicopters equipped with large machine-guns and sensors to escort and protect the six new CH-47 Chinook heavy-lift choppers already stationed at the Kandahar airfield. Although helicopters were used in NATO in Europe during the Cold War, I do not think Canadian helicopters have ever been used as they are today in Afghanistan.

In the civilian world, helicopters are being increasingly used in police work, adding to their other uses in search and rescue, heli-skiing, fire fighting, wildlife surveys, land surveying and resource exploration. Community colleges are training future

AMEs and technicians and pilots. The Canadian Forces are also recruiting and training helicopter personnel. Transport Canada also employs helicopter-experienced personnel in many areas, especially in the air-carrier and maintenance inspection fields. CAMC continues its work accrediting individual aviation trades personnel, and identifying and addressing industry technical workforce needs.

As I write this, many types of helicopters are passing over my winter home in Arizona, which just goes to show how vital they have become. Aviation's workhorses have become both specialized and indispensable. This should assure a good future for Canadian helicopter AMEs and technicians. ■

*Now retired as Regional Director, Prairie and Northern Region, Transport Canada after 10 years in the position, Roger Beebe also held other positions in his Transport Canada career, including Director, Airworthiness Western region, and senior positions at Ottawa HQ. His civil aviation experience includes Air Canada and Wardair. He also served six years in the Royal Canadian Air Force, mostly in Europe at 1 Wing Marville, France, and in Lahr, Germany. His aircraft experience includes B747, L1011, DC-8 series, DC-9 series, B707, B727, Twin Otter, Single Otter, Bristol 170, Viscount, and many 1960s military fighter aircraft, especially the CF-104.*

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