

ROTARY WING

BELL Textron Canada

This important Canadian aerospace company is increasing its work on the Canadian Armed Forces' multirole CH-146 Griffons while supporting Canada's struggling aerospace industry.

BY PETER DIEKMAYER

COVID-19 continues to create enormous challenges for the Canadian aerospace sector. According to data released by the Aerospace Industries Association of Canada (AIAC), revenues fell by more than 40% earlier this year. Many businesses shut down operations and had to lay-off staff. While industry leaders are lobbying the federal and provincial governments to implement a national aerospace recovery strategy, the politics involved are complicated.

On April 28, 2019, Steve Lavoie became President of Bell Textron Canada after a long career in Bombardier's aerostructures division. Lavoie has a simple solution to mitigate the effects of COVID-19 on Canada's aerospace industry, which can be applied right now. "Buy Canadian," Lavoie told CDR. "Bell has built more than 5,200 helicopters in Quebec and plays a key role in the country's economy. Our research indicates that we contribute \$848 million a year to the country's GDP and

sustain more than 6,000 jobs through our vast supplier network and spin off effects. Encouraging local purchases will enable Bell and other Canadian companies to build on those efforts."

MIRABEL FACILITY

Bell Textron Canada's Mirabel facility is a core strategic asset for the country's defence infrastructure, and the civilian economy that underpins it. The 650,000 square foot



manufacturing, service and support facility dominates a 151-acre lot, which is equipped with its own control tower, two runways and 17 helipads. Key aircraft in Textron's (Bell's parent company) diverse product line that are manufactured in Canada include the Bell 505 jet Ranger X, Bell 407, Bell 412, and Bell 429.

Lavoie's "Buy Canadian" messaging and promotion of local investment are far from new. They have been core elements in Bell Textron Canada's long-term focus since the company opened its doors in September 1986. This year Bell Textron Canada, which currently employs about 1,300 professionals across the country, will be celebrating its 35th anniversary on the tails of a global pandemic.

CH-146 GRIFFON

According to Marc Bigaouette, Director - CH-146 Optimized Weapon System Support, one of the company's most important mandates for the Canadian Armed Forces (CAF) relates

to the CH-146 Griffon helicopter which Bell Textron Canada began producing in the early 1990s, and which are on the cusp of a major upgrade that will extend the helicopter fleet to the mid-2030s.

The versatile CH-146 Griffon, which Bigaouette affectionately describes as "The Swiss Army Knife of Canadian Helicopters," delivers a range of essential capabilities to the Canadian Armed Forces (CAF). The Griffon fleet that is currently in service with the RCAF is based on a Bell 412 EP core and it fulfills four different roles: Search and Rescue, Combat Support, Tactical Aviation and support to Special Operations Forces. The helicopter houses a standard crew of three but that can grow to as many as 5 depending on the mission. It can also carry a section of 8 at speeds of 220-260 kilometers per hour.

Today Bell Textron Canada provides ongoing in-service support to the remaining

85 CH-146 Griffons which are spread throughout nearly a dozen bases across the country (including Gagetown, Valcartier, Petawawa), as part of an Optimized Weapons Systems Support contract.

THE CAF'S WORKHORSE

"The Griffons are essential to CAF operations both at home and abroad," says Bigaouette, who flew the aircraft extensively during his 37-year career with the Royal Canadian Air Force (RCAF). His numerous contributions during that time included flying CH-146 Griffon missions in combat situations as part of Canada's Afghanistan campaign.

Bigaouette's knowledge of the helicopter, as well as the people and processes who form part of its ecosystem, make him a key addition to the Bell Textron Canada team. The CH-146 is designed to undertake a variety of domestic and international missions that range from aid to civil powers (such as the preservation of life during floods and forest fires) to the more traditional military mission sets of observation, reconnaissance, troop transport, escort, casualty evacuation and, if the situation demands it, the provision of suppressive fire.

Recent CAF deployments of the CH-146 Griffons include Operation IMPACT and support to the Canadian-led NATO Mission in Iraq (NMI), where Tactical Helicopter Detachments provided support to the Canadian Commander NMI and Special Operations Forces.

The Griffons also operated in Mali, where according to Bigaouette, the aircraft demonstrated their capacity to function and to be maintained in hostile and semi-permissive environments. "Over the years we have realized that the CH-146's flexibility, which it achieves without sacrificing other core attributes, is one of its most important features," Bigaouette told CDR. "That's particularly important since we never know where they will be deployed next. Our job is to make sure that when they get the call, the aircraft will be ready."

OPTIMIZED WEAPON SYSTEMS SUPPORT CONTRACT

Bell Textron Canada was awarded its original CH-146 Griffon Optimized Weapon Systems Support contract (OWSS) in 2011, which at the time carried a potential value of nearly \$1 billion. However, according to Bigaouette the CH-146 Griffons have seen the most deployments of any aircraft in the RCAF fleet. As such, the scope of the OWSS contract has



President of Bell Textron Canada, Steeve Lavoie, stands with the Bell 412, Autonomous Pod Transport and EDAT (Electrically Distributed Anti-Torque aircraft)



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not surprisingly evolved considerably during the past decade.

The Canadian government is currently exercising the second of four possible option years following an initial nine-year contract. According to Bigaouette, the CAF have a range of incentives to extend the arrangement, which covers management services, engineering and technical publications, aircraft maintenance services, and spare and consumable parts, for the remaining two years which would extend work until March 31, 2024.

At Bell Textron Canada, “Buy Canadian” isn’t just a slogan. The company, which partners with as many as 550 Canadian industry subcontractors, puts its money where its mouth is. “We give as much work as we can to them,” says Bigaouette. “This creates a virtuous circle. The money we spend gets reinvested in Canada, which in turn generates more economic activity.”

GRIFFON LIMITED LIFE EXTENSION

The CH-146 Griffon’s continued importance to the CAF was highlighted in January 2019 when the federal government announced that Bell Textron Canada would be assigned design work on the Griffon Limited Life Extension program (GLLE), which will extend the life of Canada’s 85 CH-146 Griffon helicopters for at least a decade. Key to

the project will be the replacement of various avionics equipment and analogue instruments with a glass cockpit and a new digital engine which will make the A/C compliant to new navigation standards and increase the helicopter lift capacity.

“Tactical transport helicopter capability is critical to the success of the full range of military operations,” said Harjit S. Sajjan, Minister of National Defence, who gained experience with the aircraft’s capabilities during his extensive military service in Afghanistan. “With these upgrades, we are ensuring that our military can continue to rely on this proven helicopter for years to come.”

The GLLE program is a significant one for Bell Textron Canada. The definition work alone, which will be done under the existing CH-146 support contract, could be worth as much as \$90 million. But that is just the tip of the iceberg. Government officials predict that the broader Griffon Limited Life Extension mandate could cost as much as \$800 million.

“Our primary objective is to fix obsolescence issues,” says Donald Falardeau, Director Military A/C Upgrades at Bell Textron Canada. Falardeau is currently handling the first phase of this life extension, during which the company will design improvements to the helicopter’s avionics systems, engines, cockpit displays, and integrate sensor systems. He told CDR, “After that we will be aligned with Communication, Navigation, Surveillance and

Air Traffic Management (CNS/ATM) requirements so the CH-146 Griffons can continue to operate in civilian air space. Finally, we will maximize use of commercial-off-the-shelf systems, to reduce costs and facilitate flexibility.”

Initial reports suggest that the project is moving along smoothly. A key factor is the good working relationships between key Bell Textron Canada specialists and their counterparts in the RCAF and government. This facilitates effective dialogue with targeted end users in the Canadian Army and Special Operations Forces, who are providing feedback in real time as the project moves through its various cycles.

A team of about 60 specialists has been put together, many of whom were drawn from the company’s Optimized Weapons Systems Support team. However, the grouping will be increasingly scaled-up as the project moves through its various stages.

Being part of the Textron group, which last year billed more than USD \$11.7 billion, provides operational stability and fosters a slew of potential synergies for Bell Textron Canada. The arrangement has enabled the Canadian division to service customers flying Bell branded aircraft operating in 130 countries.

Bell Textron Canada’s promotion of its “buy local” policy is complicated somewhat by the fact that its U.S. parent manufactures a range of equipment that could be quite useful for the CAF. However, Lavoie notes that in the past, Bell Textron Canada has manufactured U.S. designed products, a process that maintains local jobs and supply chains, and which provides continuing in-service support opportunities for Canadian workers.

“It’s a good fit for both countries, which provides us with significant flexibility,” Lavoie told CDR. “This includes the ability to showcase a broader range aircraft such as Textron’s innovative vertical lift offerings, which have seen significant development during the past year.” The company’s Bell V-280 Valor and Bell 360 Invictus both won contracts from the U.S. Army as part of the Future Long-Range Assault Aircraft (FLRAA)

and Future Attack Reconnaissance Aircraft programs. This provides Bell Textron Canada with access to a pool of design, innovation, and technological talent, which will foster information interchanges and possible new business down the line.

AUTONOMOUS POD TRANSPORT

In recent years, Bell Textron Canada has redefined its brand image and moved beyond just making helicopters. Bell's Autonomous Pod Transport are a new suite of unmanned aerial vehicles that can take off vertically and then transition to wing-borne flights, provides a perfect example of the company's new vision.

The Autonomous Pod Transport can be flown beyond-visual-line-of-sight (BVLOS) and combine multi-copter payload capability with fixed wing speed. This enables military and civilian applications ranging from timely delivery of support kits such as ammunition, water and emergency fuel to personnel in remote locations. "The key is their ability to supply soldiers without putting lives at risk," Lavoie told CDR. "The Autonomous Pod Transporters are made of composite metals and are so small that they are almost undetectable."

BALANCING DEFENCE & CIVILIAN WORK

During the coming months Lavoie's priorities will be focussed on keeping production lines busy, which delivered 140 commercial aircraft in 2020. Bell Textron Canada's efforts will likely continue to balance the facility's dual civilian and military capabilities, which have been critical to ensuring continuity during challenging economic times. The Bell 429 model, of which the company produced its 400th unit in July of last year, shows particular promise.

The Bell 429s are widely used by police forces, security services, and the Canadian Coast Guard – which operates 15 of them along with 7 Bell 412EPs. "The Bell 429's reliability and excellent performance record



Credit: Corporal Genevieve Beaulieu

The CH-146 Griffon is a workhorse for the CAF

make them an ideal helicopter for the RACF's Future Air Crew Training program." says Lavoie. "They also would align perfectly with a "Buy Canadian" strategy because they have the highest Canadian content of any platform in its category," he told CDR.

Research and development, in which the company invests millions of dollars each year, will be another continuing focus. Bell Textron Canada's President is particularly bullish about work being done on the new Electrical Distributed Anti-Torque (EDAT) system, which began flight testing on a Bell 429 demonstrator aircraft at the Mirabel facility in 2019 and was unveiled to the public late last year.

According to Lavoie, the four small electric powered fans in the helicopter's tail rotor shroud, which are laid out in an offset two-by-two pattern, comprise a major evolution to rotor technology, which has not changed much in decades. The reduced noise, enhanced safety and operating costs that the EDAT's will provide to the company's commercial helicopter line are in high demand, and customer feedback is said to have been highly positive.

ADVOCATING FOR CANADA'S AEROSPACE INDUSTRY

Longer term, Bell Textron Canada also has an increasingly important leadership role to play.

Canada's aerospace industry, which according to the AIAC generates nearly 235,000 jobs and contributes \$28 billion to annual GDP, is the fifth largest cluster on the planet. However, that position is increasingly under threat, following waves of preventive lockdowns implemented by all levels of governments.

Yet while countries ranging from France, to Germany, the U.S. and Hong Kong have supported programs to build back aerospace sectors, convincing Canadian public sector officials to act more forcefully will be a major priority. That could prove to be a problem if too many of the sector's highly skilled, but underemployed workers migrate to other professions.

Lavoie remains optimistic, both for Bell Textron Canada and the industry. "We have a lot to offer the Department of National Defence, the CAF and commercial clients," Lavoie told CDR. "We have established relationships with three major federal departments, we have sound support infrastructure in place, experience managing one of the most comprehensive fleet sustainment programs and an established network of local suppliers. Those are a lot of good reasons to "Buy Canadian." ■

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