The Hunt for Affordable & Effective SAR

April 2001 – Kugluktuk, Nunavut
Two De Havilland CC-138 Twin Otters operated by 440 Transport and Rescue Squadron head home to Yellowknife, Northwest Territories from an inspection tour of Canadian Ranger units in Nunavut. In the co-pilot's seat (foreground) is Capt Andrew Tissot van Patot, a pilot with 440 Sqn.
PHOTO: SGT DENNIS MAH, DGPA/J5PA COMBAT CAMERA

This could have been the Year of Search and Rescue. Recognizing that Canadians are becoming increasingly aware of the importance of SAR, Canada Post issued a set of four domestic rate stamps to honour those who serve in this specialized capacity.

The headquarters of the COSPAS-SARSAT international satellite system moved from London to Montreal. Launched by Canada, France, the United States and the former USSR, the system's first operational use was on September 10, 1982, with the position-fixing of three people from the crash of a light aircraft in Canada. Since then, by receiving emergency beacon signals and relaying their positions to rescue authorities, COSPAS-SARSAT has been instrumental in the rescue of over 17,000 lives worldwide. It can detect and locate mariners, aviators, and recreational enthusiasts in distress almost anywhere, anytime and in almost any condition – the agency proudly claims that it takes the "search" out of Search and Rescue.

Technology can be of tremendous value to search operations across Canada's 10 million square kilometres (and an additional 15 million square kilometres of ocean), but the rescue phase relies on the human factor: the SAR Technician crews.

Trained to jump, hoist or dive into all types of rugged terrain or waters, usually under physically challenging and risky conditions, SAR Techs are like paramedics who must get to the highest mountain peaks, the depths of the ocean, or frozen ice fields to perform life-saving medical procedures or get the "patient" safely out of a precarious location.

The dedication and professionalism of the SAR Techs is exemplified by their motto: "That others may live."

SAR Techs say that no two rescue missions are alike – except for two critical elements: people and equipment have to be delivered with speed and accuracy. If the satellite can pinpoint the site, whatever method used to get there must be fast, well-equipped, safe and reliable.

INCIDENT REPORT: On June 8, 2005, a Cormorant helicopter and a Buffalo aircraft were launched from 19 Wing Comox to a remote area west of Penticton BC where a small home-built aircraft had crashed. After a parachute jump from the Buffalo, made hazardous by the darkness, SAR Techs, Sgt Tremblay and MCpl Lloyd, found the pilot who, despite his injuries, had managed to drag himself out of the plane. They stabilized and prepared him for hoisting when the Cormorant crew arrived to do the extraction. SAR Techs, WO Brad Gough and Sgt JP Cossette, hoisted down with the stokes litter (the lifting basket). The patient and the four SAR Techs now on the ground were safely taken up to the helicopter overhead. The Buffalo aircraft remained overhead providing top cover and communications.

Having recently replaced search and rescue helicopters with the CH-149 Cormorants, the Canadian Forces' efforts turned to replacing the aging and increasingly unavailable fleets of CC-130 Hercules and CC-115 Buffalos.

A government announcement of the new Fixed-Wing SAR (FWSAR) aircraft to replace the three-decade old Buffalos would have rounded off the year perfectly.

And replacing the Buffs is a high priority for the military, as BGen Dwayne Lucas said in a recent *FrontLine* interview, "the Buffalos were great in their time, but they need a rest right now, they need to end up in some museums."

For SAR purposes, the Canadian Forces have dedicated 13 helicopters and 15 fixed-wing aircraft at four bases: Gander, NL; Greenwood, NS; Trenton, ON; and Comox, BC.

Typical of the CF SAR squadrons is 413 Squadron which began its present role on July 8, 1968, at CFB Summerside. As the primary air search and rescue unit on Canada's East Coast, 413 Squadron crews cover an area extending from the south of Nova Scotia, north to Iqaluit on Baffin Island, as far west as Quebec City, and east out to the middle of the Atlantic

(equivalent to the distances from Paris to Istanbul, and Copenhagen to North Africa).

The aircraft used by the CF in search and rescue have been as varied as the amphibious Canso, the equally amphibious "Albert" (Albatross), to the present CC-115 Buffalo. Though the versatile "Buff" has soldiered on in a SAR role for 30-plus years, it entered service in 1967 as a tactical transport to complement the also brand new CC-130 Hercules aircraft.

In 1974, rather than purchase dedicated SAR aircraft, the Trudeau government converted 15 Buffalo transports and assigned them (with the CC-130s) to their present SAR roles. They were uncommitted, they had rear ramp doors and, except for the navaids and rescue equipment, the conversion cost taxpayers almost nothing. Other air forces, such as Brazil, did the same, and the aircraft have provided exemplary performance, a testament to good design and versatility.

But that was 30 years ago, and even "Buffs" and "Hercs" are not immune to age. Of the remaining six Buffalos, only four are on a 24/7 stand-by availability, and the Hercs are so overworked, that they are available for SAR operations less than 50% of the time.

Already taking flak from the Sea King's obsolescence, and aware of the sensitivity that Canadians had toward SAR, the governments of both Jean Chretien and Paul Martin promised to prioritize the purchase of 15 FWSAR aircraft, allocating $1.3 billion towards purchase and another $1 billion towards their maintenance.

In October 2003, then Defence Minister John McCallum said that the purchase of FWSAR aircraft was a government priority and that it would be funded in the 2004 Budget. To quote the Minister's General Strategic Plan: "The primary goal of the FWSAR Project is the procurement of 15 airframes with SAR sensor equipment, a simulation and training suite, integrated logistic support, and a 20-year in-service support contract. The RFP (Request for Proposal) will be released by March 31, 2005 with the intent of replacing the current SAR aircraft as soon as possible."

The aircraft chosen to replace the Buffs and Hercs must be an improvement of SAR service Canadians currently receive. In 2003, the Air Force developed a Statement of Operational Requirements

Sea King

SGT FRANK HUDEC

Cormorant

SGT RICK RUTHVEN

(SOR) requiring the new FWSARs to be non-developmental, off-the-shelf technology that did not need more research and development (literally out of the showroom and into the field). The SOR has been revised over the years, yet interoperable with existing and future SAR systems such as satellites, UAV's, Coast Guard and Navy vessels, and Maritime Patrol Aircraft will likely remain a key factor. The aircraft's secondary role would be light transport and surveillance.

In April 2004, Prime Minister Martin told the military that he had fast-tracked the project, and both Defence Minister David Pratt and his successor, Bill Graham, were given a timetable that called for the contract to be awarded in June 2005 (with aircraft deliveries starting in February 2006), allowing the Buffalos to be retired by 2010. Canadians would know by midsummer 2005 which aircraft they would have – a fitting cap to a year when Search and Rescue has received so much recognition. But if only it were that simple...

Allegations of favouritism abound. There were rumours of "...pressure from some quarters in the procurement chain to award a contract… without holding a competition" *(Flight International)*; or that requirements were altered to allow the CASA C-295 to compete; or that CF officials boycotted the C-295's demo flights while allowing its competitor to tour CF bases *(National Post)*.

Now, the two European-based consortiums are attempting to win the hearts and minds of Canadians.

Italy-based Alenia, founded in 1990, has teamed with L-3 Communications Canada, Lockheed Martin and Rolls Royce. As Team Spartan, they will propose the C-27J Spartan for Canada's FWSAR program.

Spanish CASA dates back to 1923 and is now part of EADS. The C-295 comes equipped with Pratt & Whitney Canada engines and Thales Canada avionics.

With the two suave European suitors courting Canada, one has to ask: are there any Canadian contenders?

Bombardier claims that its Dash 8 should be considered. For a pure search and limited rescue role, the Dash 8 is certainly

The Buffalos are quickly nearing the end of their life span and need to be replaced soon.

FWSAR Contender
Alenia C-27J Spartan

FWSAR Contender
EADS CASA C-295

suitable, as demonstrated by SAR contracts in Sweden, maritime patrol in Australia and the United States. However, the lack of a ramp door puts Bombardier at a disadvantage as ramp doors are a key feature to jettison SAR equipment and technicians.

And yes, there is Canadian content in each entry *(see "FWSAR Contender" articles on pages 12 and 14)*.

But June 2005 has come and gone without an announcement – a two year delay was not unusual in these cases, an Air Force spokesperson said. At this rate, a contract will not be awarded until the end of 2006 or early 2007.

"The [search and rescue aircraft] project has taken the time to further study the requirement and procurement strategy to ensure the program is aligned with the newly released Defence Policy Statement." explained military spokesperson Major Lynne Chaloux.

BGen Dwayne Lucas, DG Aerospace Equipment Management, explains (just minutes before he retires) that after the procurement strategy has been approved by the Minister, a trio of documents, Statements of Operational Requirements, Operational Intent, and Support Intent, will be issued this fall.

No date has been set for deliveries, but aerospace industry representatives expect those to take place in late 2008 or early 2009.

Criticism from the northern territories indicates that the wait for SAR Techs to arrive from the south is too long for emergencies in harsh northern climates. Experience has shown it's more realistic to call on nearby volunteers to perform immediate searches which can mean the difference between survival and perishing from exposure in severe climates. Northern groups claim that even a six hour response time is too long to begin a search for injured victims exposed to –60° weather. They contend that the only effective northern SAR response must include at least one northern base.

The timing for CASA has been propitious. Having all the SAR aircraft based in the distant south leaves Canadians in the Arctic, let alone those passengers on polar flights, woefully unprepared.

Looking beyond the current southern base locations also fits in with the Prime Minister's desire for a stronger military presence in the North. According to Defence Minister Bill Graham, the Defence Policy Review recognizes "the need to expand our role in the Arctic." And General Rick Hillier, Chief of the Defence Staff, confirms that the Canadian Forces "will see a more active presence across the North."

Having transport aircraft in the North could increase Canada's presence and credibility for sovereignty claims, and also solve international flight requirements.

PHOTO: WO PETER VELDHUIZEN

A 435 Squadron CC130 Hercules aircraft from Winnipeg, Manitoba, prepares to drop a streamer prior to dropping bundles during SAREX 04.

The EADS CASA web site emphasizes "Better Coverage for all Canadians." Claiming lower acquisition and operational costs, it says the government could buy more C-295s. And, should Canada embark on the envisaged purchase of heavy lift helicopters, likely the Chinooks, the C-295 has a 100% complementary cabin design, meaning cargo can be transferred within minutes from the C-295 into the Chinooks.

Alenia declined to comment on the decision to alter the requirements, but their "No Compromise" slogan says it all, with Alenia's Marcello Cianciaruso adding that the C-27J is no more expensive than the C-295 to buy or operate and has been offered for a lower price in past competitions. This means that if DND purchases additional aircraft to base in the north, the C-27J is well suited to meet this requirement. The C-27J Spartan has the same logistical and maintenance characteristics as the Lockheed Martin C-130J Hercules, and SAR pallets can be transferred from one to the other without reconfiguration. The two aircraft have the same engines and avionics commonality, which would provide benefits if Canada buys the C-130J as its next tactical airlifter.

All in all, Search and Rescue in Canada's northern regions has shown that the mostly-ignored needs of our northern territories, and the requirements for the FWSAR competition, are a more complex challenge than initially considered when the Government of Canada first decided to "fast-track" a new FWSAR aircraft. The debate continues. FL

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