

# Rotary Wing SAR

Its unique flying characteristics make the helicopter ideally suited to search and rescue missions worldwide. This is also true in Canada where the Canadian Forces (CF), in a leading role, are assisted by the Canadian Coast Guard (CCG) and often by volunteers from the Canadian Air Search and Rescue Association (CASARA).

The core CF/SAR helicopters are a fleet of 15 CH-149 Cormorants, but the military's 86 Bell CH-146 Griffon utility tactical transports also are SAR capable, as are its 28 Sikorsky CH-124 Sea Kings, which are due to be replaced by Sikorsky CH-148 Cyclones, starting in 2008.

CCG helicopters, used mainly for service and supply roles, comprise 15 MBB BO105s, 10 Bells (six 206L/L1s and four 212s), and a Sea King (which is based at Prince Rupert, British Columbia and is the only CCG aircraft equipped with a SAR hoist).

LCol Colin Goodman, senior staff officer for search and rescue at air force operational headquarters, 1 Canadian Air Division, Winnipeg, is understandably proud of the pivotal role helicopters play in the Department of National Defence's SAR mission. His operational career began in Bell CH-136 Kiowas, the light observation aircraft later replaced by the Griffons. Most of his 5,300 hours were logged in the distinctive tandem-rotor CH-113 Labradors, the four-decade backbone of Canada's SAR capacity, and then in Cormorants at 442 Squadron in Comox, British Columbia.

With five Cormorants, including two normally dedicated to the Operational

Training Flight, 442 is one of four primary CF/SAR squadrons. There are three Cormorants at 424 Sqn in Trenton, Ontario, four at 413 Sqn in Greenwood, Nova Scotia, and three at 103 Sqn in Gander, Newfoundland. Their speed, range and capacity to operate in moderate icing conditions suit them particularly well to the Canadian SAR environment.

One of the more high-profile Cormorant rescues occurred last summer when a stricken passenger had to be retrieved from the *Queen Mary 2* liner, some 250 nautical miles southeast of Halifax. Crew of the Greenwood-based aircraft had just landed after a morning of training when the call came in. Although the Cormorant had the range to reach the ship, it didn't have enough capacity to "loiter" long enough to do the pickup, so it was topped up (engines still running) at an offshore platform, partway to the QM2. When it rendezvoused with the moving QM2 (which doesn't have a helipad), the helicopter was effectively in transition between hover and forward flight about 200 ft off the surface of the ocean and 60 ft above the deck. It dropped off a pair of SAR Technicians who assessed the patient and readied him for what turned out to be

an otherwise fairly routine hoist. The mission time was about six hours but by the time they had returned to Greenwood, the crew had been on the job for 14 hours.

Whether by radio or telephone, or in response to signals from an emergency locator transmitter (ELT), an emergency position indicating radio beacon (EPIRB) or personal locator beacon (PLB), calls for assistance are essentially triaged by the Joint Rescue Coordination Centres (JRCCs) in Victoria, Trenton and Halifax. If it is an emergency beacon, depending on where a situation is developing, the Canadian Mission Control Centre at Trenton assigns it to a JRCC, where the CF aeronautical coordinators or Canadian Coast Guard maritime coordinators decide the best way to respond.

A significant challenge for the JRCCs is that although signals from ELTs, EPIRBs and PLBs are too often "false," they still require action. If the signal originates at an airport, the JRCC will often dispatch local police or a CASARA volunteer who may find that a switch has been thrown accidentally. A marine-sourced signal, however, usually involves aircraft deployment, which can mean that valuable aircraft and crew hours may not only be wasted but also unavailable in a genuine emergency.

"We are the primary responder or provider of assets for the aeronautical side of maritime SAR, and the Coast Guard is the primary provider of shipborne resources," Goodman says. Sometimes it's obvious whether it's a maritime or aviation search,

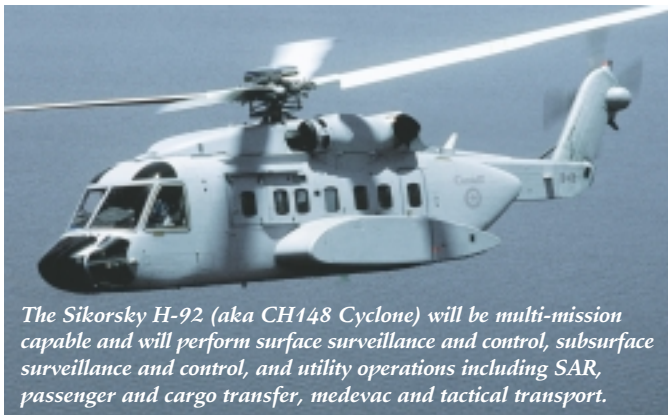


PHOTO COURTESY: SIKORSKY

*The Sikorsky H-92 (aka CH148 Cyclone) will be multi-mission capable and will perform surface surveillance and control, subsurface surveillance and control, and utility operations including SAR, passenger and cargo transfer, medevac and tactical transport.*



PHOTO: WO PETER VELDUIZEN CANADIAN FORCES

*This CH146 Griffon helicopter from 439 Sqn (Bagotville, Quebec) received a new Search and Rescue paint job for last year's SAREX.*

but in areas with a lot of water, military and civilian surface vessels could be put on the lookout. Coast Guard auxiliary services on the east and west coasts and the Great Lakes can also come into play.

“Every aircraft in the Canadian Forces inventory is a secondary SAR asset,” Goodman explains. That includes the Griffons in combat support squadrons at Cold Lake (Alberta), Bagotville (Quebec), and Goose Bay (Labrador). “They do have search and rescue technicians on board... and they’re used quite often.” A recent search for an overdue Beech King Air 200 on the West Coast involved at least two Cormorants and two Griffons.

The Arctic presents a unique challenge for SAR assets due to the remoteness of the region and the often uncooperative weather – a situation that often generates

calls for the establishment of a permanent base. In the rare case when a Cormorant may be dispatched north, it must do it in hops. However, the CF maintains that only about one per cent of SAR calls originate north of the 60th latitude. “Although we don’t have dedicated SAR assets there, the JRCCs can utilize other suitable assets, such as civil operators, that can provide initial response until primary assets are deployed.”

While fixed-wing aircraft can cover vast distances at high speed, a helicopter’s ability to fly low and slow and hover suits them especially well for both the S and R elements of the mission. “When searching in treed areas, for example, 80-90 knots is a very good speed,” Goodman notes, adding that most fixed-wing aircraft would be stalling out long before that speed is

achieved. Even a small Cessna, despite its slow-speed potential, would offer marginal capability when loaded up with a pilot and spotters on a hot day.

“Helicopters are the ideal platform if you’re in mountainous terrain,” Goodman continues. “Fixed-wing aircraft can do valley shoots but it’s sometimes tough to get into tighter contours; pilots don’t want to get into rising terrain in a box canyon.”

The versatility of helicopters in SAR applications are even more evident after dark as CF helicopter crews, equipped with night-vision goggles, can continue searching when lives are at stake and time is of the essence. **FI**

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