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Combat Search and Rescue

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Most Canadians are aware that Canada possesses a sophisticated search and rescue capability, with its aircraft and helicopters primarily flown by Canada's Air Force. Some come by this knowledge as a result of a personal tragedy in their lives, but most understand this by osmosis as they watch search and rescue operations carried out under the watchful eyes of a TV crew.

Most are also aware that Canada possesses a robust combat capability in the form of our CF188 jet fighters, currently being employed against the insurgency in Iraq and Syria. In addition to our CF188s in theatre, there are regular resupply missions being carried out by our air transport fleet, and Canada's Aurora long range patrol aircraft (LRPA) are being employed as strategic assets in theatre due to their recent electronics upgrading, which gives them superb intelligence gathering capabilities from stand-off distances.

These latter two aircraft have crews which are much larger than the single seat CF188 attack fighter jets. The LRPA carries a crew of approximately 12 when employed in these types of surveillance operations, while the transport aircraft may also have crews approaching the size of those that man the Aurora aircraft.

While it is not difficult to imagine a Canadian based search and rescue team of helicopters and fixed wing aircraft looking for crash survivors or lost hunter's in Canada's vast area, imagine now the lost hunter being the pilot of a CF188 that has gone down in theatre either from enemy action or aircraft malfunction. In this case, the Combat Search and Rescue (CSAR) helicopters and fixed wing aircraft looking for one of our pilots in a combat zone have an entirely different challenge on their hands.

The challenge is one of finding the downed aviator or aviators somewhere in theatre. The CSAR helicopters in particular must possess some unique characteristics that are simply not in Canada's inventory of search and rescue helicopters. They must be able to do the following:

- They must be long range assets, usually capable of aerial refuelling, and of a sufficient size to be able to effect a multi-person extraction.

- While leaving the overall first sweep for survivors to a larger asset such as an Aurora or satellite coverage, the CSAR fixed wing aircraft and helicopters both must be able to communicate across a broad range of communications devices.

- These communication devices may range from the small survival radios packaged into a fighter pilot's back pack with which he bails out, to sophisticated satellite communications and over-the-horizon radio systems;

- A CSAR helicopter, once heading to a location determined either by intelligence, friendly operators on the ground or other strategic assets, must have the capability to do several things simultaneously:

- it must be able to see at night to assist in the location of survivors and/or enemy forces in the vicinity who will also be looking for the downed crew;

- it requires a sophisticated radar system that can differentiate between various objects on the ground, sophisticated enough to differentiate the downed aircrew from friendly and hostile forces;

- it must possess a reasonably sophisticated tactical navigation system that knows where it is, where it wants to go (programed in by the crew), and can plot known enemy and friendly positions; instant detection system(s) which alert the crew to hostile fire coming their way; self-defence jamming systems to lure missiles out of the way; chaff and flares which are automatically activated to assist further in the luring of hostile missiles to miss the helicopter; and sophisticated capabilities to be able to receive satellite data while the helicopter is airborne;

- it must have IFF (Identification Friend or Foe) capable of keeping it from becoming a casualty of a blue-on-blue action;

- it must be able to operate on its own without fighter escort, which raises the level of sophistication significantly; and

- it must be able to literally fight its way in, remain for up to a minute in the vicinity, execute a rapid pickup with a high speed hoist, and fight its way out again. This calls for a combination of jamming devices and a machine gun that can suppress hostile activity during the actual pick up phase of the operation.

These are but a few of the capabilities that a CSAR aircraft must possess in order to be able to carry out its mission to get in as quickly and quietly as possible, loiter for as little time as possible, and get out safely again. This is quite different from a normal search and rescue aircraft found in Canada.

While Canada operates none of these CSAR assets that can be deployed in theatre, we do possess one half of the equation, which is our Aurora LRPA. This aircraft does possess the level of sophistication to allow it to be very valuable in tracking and pin-pointing a downed Canadian fighter or alliance fighter pilot, and in providing critical guidance to a downed aviator's location.

While Canada does not possess the other half of the equation, the CSAR helicopter, the ultra-sophisticated maritime helicopter which is just now beginning to come on line at Shearwater, NS, does have most of these capabilities. It also has sophisticated equipment to hunt and prosecute submarines in both shallow and deep water, and to provide a well-developed surface plot which can be shared over satellite communications with ships at sea, allowing them to assess and take action against surface, sub-surface and airborne threats.

The day can be foreseen where our maritime LRPA and the new maritime helicopters, working together in tandem, could indeed provide the first and critical response to locating downed allied air crew.

Usually when fighter aircraft are deployed, a CSAR capability travels with them to provide the capability to effect combat rescue missions under day or night and hostile conditions. The US Air Force, the US Army aviation battalions and some European countries operate CSAR aircraft and are doing so now in the Middle East theatre of operations. Canada, as do other countries that operate strike aircraft

and helicopters in hostile theatres, must be able to rely on other countries bringing this CSAR capability - that is the beauty of the sharing of assets in a true NATO or United Nations context.

The US Air Force and US Army possesses very capable and reasonably long range CSAR helicopters, and it is thought that they are providing this capability for our current missions in the Middle East. It is certainly thought that while Canada is keeping up with the modernization of our fighter aircraft and one half of the CSAR equation, we are not at this time able to provide the helicopter assets to complete this extremely vital compliment to any combat air actions taken anywhere in the world.

While it may provide a comfortable feeling for our commanders in the field to possess a uniquely Canadian CSAR capability, it is thought that this capability remains a long way down Canada's priority lists, and is not likely to be seen in Canadian colours for some time to come.

It should not be forgotten, however, that with every fighter operation staged anywhere in the world, a likelihood that will continue for the foreseeable future, a CSAR capability is requisite to accompany the fighters into action. It is incumbent on us as Canadians to understand this requirement and to insist that CSAR capability, whether our own or an allied force's, accompanies our fighter jets into action.

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