



REASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION A16-10

Terrain awareness and warning systems for helicopters

Background

On 31 May 2013, at approximately 0011 Eastern Daylight Time, the Sikorsky S-76A helicopter (registration C-GIMY, serial number 760055), operated as Lifeflight 8, departed at night from Runway 06 at the Moosonee Airport, Ontario, on a visual flight rules flight to the Attawapiskat Airport, Ontario, with 2 pilots and 2 paramedics on board. As the helicopter climbed through 300 feet above the ground toward its planned cruising altitude of 1000 feet above sea level, the pilot flying commenced a left-hand turn toward the Attawapiskat Airport, approximately 119 nautical miles to the northwest of the Moosonee Airport. Twenty-three seconds later, the helicopter impacted trees and then struck the ground in an area of dense bush and swampy terrain. The aircraft was destroyed by impact forces and the ensuing post-crash fire. The helicopter's satellite tracking system reported a takeoff message and then went inactive. The search-and-rescue satellite system did not detect a signal from the emergency locator transmitter (ELT). At approximately 0543, a search-and-rescue aircraft located the crash site approximately 1 nautical mile northeast of Runway 06, and deployed search-and-rescue technicians. However, there were no survivors.

The Board concluded its investigation and released report A13H0001 on 15 June 2016.

TSB Recommendation A16-10 (June 2016)

This occurrence was a controlled flight into terrain (CFIT) accident, in which a serviceable aircraft was unintentionally flown into the ground. During an attempt to conduct a night visual departure in extremely dark conditions, an inadvertent descent developed, and the aircraft struck the terrain. When the flight crew recognized that an inadvertent descent had developed, they were at an altitude from which they were unable to recover. Although some aircraft of the operator's S-76A fleet were equipped with a terrain awareness and warning system (TAWS), the occurrence aircraft was not, and was not required by regulation to be equipped with one. As a result, the flight crew did not receive a timely warning of the inadvertent descent or the impending impact.

A large number of commercial helicopters routinely conduct flight operations at night or in instrument meteorological conditions (IMC), or both. Without the benefit of TAWS, such aircraft are at significantly greater risk for CFIT. The TSB has investigated a number of helicopter occurrences that took place at night or in IMC where TAWS may have proven useful in preventing an accident.

In Canada, commercially operated aeroplanes and some privately operated aeroplanes are required by regulation to be equipped with TAWS. However, there is no such regulatory requirement for commercial helicopters, despite the fact that they often operate along similar routes as commercial fixed-wing aircraft, and sometimes carry larger numbers of passengers. As a result, the regulations do not currently provide for an equivalent level of safety between commercial fixed-wing versus commercial rotary-wing operations.

Until there is a requirement for Canadian-registered commercial helicopters to be equipped with TAWS, the crew members and passengers who travel on those aircraft at night or in IMC will continue to be at increased risk for injury or death due to CFIT.

Therefore, the Board recommended that

the Department of Transport require terrain awareness and warning systems for commercial helicopters that operate at night or in instrument meteorological conditions.

TSB Recommendation A16-10

Transport Canada's response to Recommendation A16-10 (September 2016)

Transport Canada agrees in principle with this recommendation.

TC will engage the helicopter community in 2017 to inform the department on how to address this recommendation.

Transport Canada Update (December 2016)

Transport Canada will be sending out a letter in 2017 to the helicopter community requesting data on terrain awareness & warning systems. The data will then be analyzed and TC will determine a way forward.

Board assessment of Transport Canada's response to Recommendation A16-10 (December 2016)

In its response, TC indicated that it agrees in principle with this recommendation and advises that it will be sending out letters to the helicopter community in 2017 to seek their input on this issue. As there is no indication as to what actions will be taken once the data collected has been analysed, it is unclear how and if the ensuing actions will address the intent of this recommendation.

Therefore, the Board is **unable to assess** Transport Canada's response to Recommendation A16-10.

Transport Canada's response to Recommendation A16-10 (October 2017)

TC agrees in principle with the recommendation.

While TC has not heard back from the Helicopter Association of Canada (HAC), TC will follow up and discuss this subject during HAC's upcoming safety meeting in the fall.

TSB reassessment of Transport Canada's response to Recommendation A16-10 (March 2018)

In its response, TC indicated that it was waiting to hear back from the Helicopter Association of Canada (HAC) and that it would follow up and discuss this issue at the HAC safety meeting that took place in November 2017. The TSB has not received any additional information following this meeting, indicating if TC has started collecting and analyzing data on terrain awareness and warning systems or determined what actions it intends to take in order to mitigate the risks associated with the safety deficiency identified in Recommendation A16-10.

The TSB is concerned with the lack of progress in addressing this safety deficiency.

Therefore, the Board remains **unable to assess** Transport Canada's response to Recommendation A16-10.

Transport Canada's response to Recommendation A16-10 (March 2019)

TC agrees in principle with the recommendation.

TC is considering making use of terrain awareness and warning systems (TAWS) mandatory in rotorcraft. Industry stakeholders, reporting to the night visual flight rules (NVFR) working group, are currently reviewing the available technology and its limitations, to develop appropriate wording intended for incorporation in the regulations and standards. This work is ongoing, and recommendations should be ready for submission for decision making by spring, 2020.

In the interim until a decision is taken, TC will promote the voluntary use of TAWS for rotorcraft starting in the summer of 2019 through social media, online engagement, and conference discussions.

TSB reassessment of Transport Canada's response to Recommendation A16-10 (May 2019)

In its response, Transport Canada (TC) indicated that it agrees in principle with this recommendation and advises that it is considering making terrain awareness and warning systems (TAWS) mandatory in rotorcraft, depending on recommendations from the night visual flight rules (VFR) working group. Until a decision is made, TC will promote the voluntary use of TAWS for rotorcraft starting in the summer of 2019.

As there is no indication as to what actions will be taken once the recommendations from the night VFR working group are received, it is unclear how and if the ensuing actions will address the intent of this recommendation.

Therefore, the Board remains **unable to assess** Transport Canada's response to Recommendation A16-10.

Next TSB action

The TSB will continue to monitor the progress of TC's actions to mitigate the risks associated with the safety deficiency identified in Recommendation A16-10, and will reassess the deficiency on an annual basis or when otherwise warranted.

This deficiency file is **Active**.