



ASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION A19-04

Closing gaps in the air-taxi regulatory framework

Background

In May 2015, the Transportation Safety Board of Canada (TSB) launched an in-depth Safety Issue Investigation (SII) into the risks that persist in air-taxi operations across Canada. This SII reviewed 15 years of data to identify safety issues in air-taxi operations in Canada that have not been sufficiently mitigated. This SII examined air-taxi operations as a whole and considered safety issues that are germane to the entire air-taxi industry and not just to one specific segment of the industry.

The Board concluded its SII and released report A15H0001 on 07 November 2019.

TSB Recommendation A19-04 (November 2019)

The hazards and risks in air-taxi operations have persisted over many years, with data directly showing the persistence of operational hazards from 1998 to 2015. The SII has illustrated that regulations and standards alone cannot guarantee safety in the sector, but they do provide necessary controls that contribute to safety in the sector. That said, there are gaps in this regulatory framework, namely with regard to training and qualifications, improvements to older aircraft, and fatigue in aircraft maintenance engineers (AMEs).

Training and qualifications

The *Canadian Aviation Regulations* (CARs) set out the required training for operators, but the actual training provided can vary widely, as operators observed. While some operators provide training only to a level that meets the requirements in the regulations, others provide extra training beyond the requirements to address needs and/or to derive benefits that mitigate risk in their operation. However, several operators mentioned that without updated regulations and standards forcing all operators to work under the same rules, the playing field is not level.

Although Subpart 703 of the CARs has mandatory training requirements for certain specialized operations, such as night flying, there are no such requirements for many other specialized operations such as mountain flying and coastal flying. There is also no regulation addressing line indoctrination for air-taxi operations. Mandatory training requirements may therefore be inadequate to meet the many unique aspects of air-taxi operations. Without the requirement for specialty training for high-risk operations, pilots may lack the knowledge and skills to ensure safe flight operations.

Furthermore, pilots conducting medical evacuation operations would benefit from specialized training to help them manage the psychological and traumatic challenges of this type of operation.

The qualifications of key personnel within an air-taxi operation were also identified in the SII as a potential issue. TSB investigations from the study period showed that key positions (e.g., operations manager or chief pilot) do not appear to be given sufficient attention when the regulator approves the appointment of individuals to these positions. More attention needs to be given to an individual's credentials and qualifications, as well as the operational requirements for the key positions at the operator. Furthermore, although there are regulatory requirements relating to the roles and responsibilities that these key positions must fulfill, there are no training requirements for individuals appointed to these positions.

Improvements to older aircraft

The SII also identified the difficulty in making improvements to older aircraft such as installing new avionics because it would require a change to the original aircraft type design. The approval process required by Transport Canada (TC) requires a supplemental type certificate to be developed, which can be a costly and burdensome process; for some smaller operators, the costs may be prohibitive.

Fatigue in aircraft maintenance engineers

The industry consultations revealed that AMEs often experience fatigue when working, especially when they are working in a remote location or away from their main base. Duty days can be long, and duty-day hours for AMEs are not subject to TC's regulations. Some operators stated that duty days for AMEs are often not defined by operators and that AME duty-day regulations are required.

Closing the gaps

Some operators have identified gaps in the existing regulations and standards. Some operators' recommended practices go beyond the current regulatory requirements or include concepts that are not yet addressed by regulations, for example

- carrying out all flights under instrument flight rules
- using 2 pilots for all operations
- establishing their own minimum requirements for pilot flight experience

However, in the face of the competing pressures illustrated by the safe operating envelope model, operators may choose to simply comply with the regulations even though exceeding them would increase safety pressure (e.g., limiting training expenses by providing only the training required by regulation, even when specialized mountain or survivability training would mitigate risks associated with the operation). As long as gaps, such as the ones identified in the SII exist in the regulatory framework, there will be an uneven level of safety in the air-taxi sector.

Therefore, the Board recommended that

the Department of Transport review the gaps identified in this safety issue investigation regarding Subpart 703 of the *Canadian Aviation Regulations* and associated standards, and update the relevant regulations and standards.

TSB Recommendation A19-04

Transport Canada's response to Recommendation A19-04 (January 2020)

TC agrees with the recommendation.

TC strives to ensure regulations are appropriate for the sector and has been working on the three main areas identified in the Safety Issue Investigation (SII), namely: Training and qualifications, improvements to older aircraft and fatigue among aircraft maintenance engineers (AMEs).

- **Training and qualifications:** There are two initiatives underway that have the potential to enhance training and qualification requirements in the air taxi sector to increase the focus on managing the types of operational risks highlighted in the air taxi investigation report while maintaining crew competence in basic aircraft maneuvers:
 - TC is undertaking a review of training and qualification requirements in all subparts of the *Canadian Aviation Regulations* (CARs). This will include an examination of pilot proficiency check schedules, training captain and instructor qualification requirements, operator training curriculum requirements, approved check pilot manuals and flight test guides and the expanded approval of flight training devices, particularly for subparts 702 and 703. This initiative will begin with communication and consultation with industry in 2020 with drafting of regulatory material by 2022. Implementation of identified changes would be expected in 2023.
 - As part of Transport Canada's transformation strategy and within the scope of the Civil Aviation Regulatory Review project, a regulatory review is underway to look at training irritants related to personnel training, qualifications and licensing. This package includes Part IV, VI and VII irritants identified in the 2015/16 work (Notice of Proposed Amendments from 1999-2015, internal comments etc.) as well as existing irritants raised from the 2013 Fletcher report, Let's Talk submissions, and the Fall 2018 Treasury Board survey published in the *Canada Gazette*, Part I (CGI). This regulatory package is anticipated for CGI publication in 2020/21.
- **Improvements to older aircraft:** TC is currently updating Airworthiness Manual Chapter 523 ¹ *Normal, Utility, Aerobatic and Commuter Category Aeroplanes*. The intent of this update is to facilitate design changes on normal category airplanes. The changes will ease the introduction of "life-saving technologies" (angle of attack indicator, moving map GPS displays for example) with less certification administrative burden than has been required under the current prescriptive

¹ *Canadian Aviation Regulations*, Airworthiness Manual, Chapter 523 – *Normal, Utility, Aerobatic and Commuter Category Aeroplanes*. Available at: <https://www.tc.gc.ca/en/transport-canada/corporate/acts-regulations/regulations/sor-96-433/part5-standards-523-menu-696.htm>

standards of airworthiness to an increased number of aircraft. TC anticipates having the required guidance documentation to support these changes submitted for consultation through the Canadian Aviation Regulation Advisory Council (CARAC) process early in 2020.

- ***Fatigue in AMEs:*** TC has been working to address the issue of fatigue in aviation. Specifically, TC has updated flight and duty time limits for pilots. It is also providing support and input to the amendments to the *Canada Labour Code (CLC)* being proposed by Employment and Social Development Canada (ESDC). These amendments are meant to update the CLC to better align with international standards and improved employee work-life balance. These could have a positive impact on fatigue management. ESDC is currently in the process of launching a last round of stakeholder consultations before drafting supporting regulations, which are anticipated to come into force in late spring, or summer 2020.

Finally, TC continues to work with industry to improve safety and to address TSB recommendations and is making good progress. The report highlights 22 active recommendations as having the potential to enhance safety in the air taxi sector, 18 of which are directed to TC. Our efforts are showing results and the TSB has assessed TC's response to more than 70% of these recommendations as being either "Satisfactory in Part" or "Satisfactory Intent."

We recognize there is more to be done. The three recommendations cited in the report for which TC has received an "unable to assess" assessment by the Board demonstrate TC's commitment to ensuring that regulatory actions are accomplished in a manner that meets the needs of all stakeholders. In all three cases (A16-12 – SMS implementation, A16-10 – Terrain Awareness Warning Systems (TAWS) in helicopters and A17-01 – stall warning systems for the Beaver aircraft), TC has or is currently undertaking further study to ensure that actions taken address the identified safety deficiency in an effective way that can be implemented by Canadian operators. Detailed updates on TC's actions related to all three of these recommendations were recently provided to the TSB and are awaiting reassessment by the Board.

TC has received an "Unsatisfactory" rating on only two of the recommendations discussed in the report. In these cases, the action proposed by the TSB has been determined to be impracticable to implement (A90-84 – helicopter instrumentation and A13-03 – passenger shoulder harnesses in float planes). Although TC determined it was not feasible to pursue the specific action recommended by the TSB in these instances, other mitigations were put in place to improve float plane safety and to reduce the incidence of inadvertent flight into poor weather by helicopters. An example of this is the changes to the CARs that will enhance safety for seaplane passengers and crew published in the *Canada Gazette*, Part II in March 2019². The proposed change require passengers and crew of commercial seaplanes with nine passengers or less to wear an inflatable flotation device while the aircraft operates on or over

² Canada Gazette Part II, Vol. 153, No. 5 - Regulations Amending the *Canadian Aviation Regulations* (Parts I, VI and VII – Seaplane Operations) Available at: <http://gazette.gc.ca/rp-pr/p2/2019/2019-03-06/html/index-eng.html>

water while in seaplanes with 10 to 19 passengers, flotation devices will continue to be required onboard for all occupants; however, occupants will not be required to wear the flotation device and mandatory training for all pilots of commercial seaplanes on how to exit an aircraft under water.

TSB assessment of Transport Canada’s response to Recommendation A19-04 (March 2020)

In its response, Transport Canada (TC) indicated that it agrees with Recommendation A19-04.

TC has initiated work in the following three areas: training and qualifications, improvements to older aircraft, and fatigue among aircraft maintenance engineers (AMEs). TC indicates that it will be taking the following approach to address the safety deficiency identified in Recommendation A19-04:

Training and qualifications

- In 2020, TC is undertaking a review of training and qualification requirements in all subparts of the *Canadian Aviation Regulations* (CARs), with implementation expected in 2023. This covers:
 - The examination of pilot proficiency check schedules
 - The training captain and instructor qualification requirements
 - The operator training curriculum requirements
 - The approved check pilot manuals and flight test guide review
 - The expanded approval of flight training devices, particularly for Subpart 702 and Subpart 703 of the CARs
- As part of TC’s Civil Aviation Regulatory Review project, a review of training irritants related to personnel training, qualifications and licensing is underway. This regulatory package is anticipated to be published in the *Canada Gazette, Part I*, in 2020–21.

The Board is encouraged that TC has already initiated a regulatory review and looks forward to the published details of the proposed regulatory enhancements in the near future.

Therefore, the response to Recommendation A19-04 specific to training and qualifications is assessed as **Satisfactory Intent**.

Improvements to older aircraft

- TC is currently updating Chapter 523, Normal, Utility, Aerobatic and Commuter Category Aeroplanes, of the *Airworthiness Manual* (AWM) to facilitate design changes on normal category airplanes, making the introduction of “life-saving technologies” such as angle of attack indicators and moving map global positioning system displays easier. The consultation process through the Canadian Aviation Regulation Advisory Council (CARAC) should take place in early 2020.

The information submitted by TC does not contain sufficient details to make an assessment as to how effective the proposed updates to Chapter 523 of the AWM will be in addressing the safety deficiency associated with Recommendation A19-04.

Therefore, the Board is **unable to assess** the response to Recommendation A19-04 specific to improvements to older aircraft.

Fatigue in aircraft maintenance engineers

- To address this issue, TC is supporting Employment and Social Development Canada (ESDC) in developing amendments to the *Canada Labour Code* (CLC).

The Board acknowledges that TC has provided input to the amendments to the CLC through ESDC. The purpose of Recommendation A19-04 was to review the gaps identified in this Safety Issue Investigation (SII) regarding Subpart 703 of the CARs and associated standards, and to update the relevant regulations and standards. The preamble for Recommendation A19-04 refers to the lack of duty day regulations for aircraft maintenance engineers and to the fact that the CARs do not currently address the issue in any way. The TSB is not aware of how TC/ESDC's actions will address this element of the safety deficiency.

Therefore, the Board is **unable to assess** the response to Recommendation A19-04 specific to Fatigue in aircraft maintenance engineers.

Closing the gaps

The SII highlighted gaps in the existing regulations and standards that were identified by the operators. These gaps extend beyond those provided in the preamble of Recommendation A19-04. Some operators recommended practices go beyond the current regulatory requirements. As long as those gaps exist, there will be an uneven level of safety in the air-taxi sector. TC did not provide a detailed response with regards to how they plan to address the gaps in the regulations and standards identified in the SII other than the details listed above.

Therefore, the Board is **unable to assess** the overall response to Recommendation A19-04 specific to *Closing the gaps* in the regulations and associated standards.

Next TSB action

The TSB will monitor the progress of TC's actions to mitigate the risks associated with the safety deficiency identified in Recommendation A19-04, and will reassess the deficiency on an annual basis or when otherwise warranted.

This deficiency file is **Active**.