



## **REASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION A96-08**

### **Survival equipment, first aid kits and ELTs**

#### **Background**

On 21 February 1995, a Bearskin Lake Air Services Ltd. Beechcraft A100 was on a regular scheduled flight, under visual flight rules, to Big Trout Lake Airport, Ontario, with 9 passengers and a crew of 2 on board. The crew were flying the aircraft over a lake about 4 miles northwest of the airport for a landing on Runway 14 when whiteout conditions were encountered. The aircraft descended in controlled flight into the frozen surface of the lake. The crew and several passengers sustained serious injuries. Rescuers from the local community reached the aircraft about 2 hours after the crash and all 11 survivors were rescued within 4 hours.

The Board determined that, while the crew were manoeuvring the aircraft to land and attempting to maintain visual flying conditions in reduced visibility, their workload was such that they missed, or unknowingly discounted, critical information provided by the altimeters and vertical speed indicators. Contributing factors were the whiteout conditions and the crew's decision to fly a visual approach at low altitude over an area where visual cues were minimal and visibility was reduced.

The Board concluded its investigation and released Aviation Investigation Report A95C0026 on 21 May 1996.

#### **TSB Recommendation A96-08 (May 1996)**

The issue of post-accident survivability has been an ongoing concern in commercial aviation. Over the years, the TSB and its predecessor, the Canadian Aviation Safety Board, have made recommendations to Transport Canada for a prescribed minimum list of survival equipment, improved first aid kits, and improved ELTs to be carried on Canadian commercial passenger-carrying aircraft. Notwithstanding these previous recommendations made by the Board, safety deficiencies affecting post-crash survivability continue to exist, as exemplified by this accident.

Without appropriate guidelines both for the carriage of enhanced first aid kits for post-crash use and for the granting of waivers regarding the carriage of survival equipment, and without the upgrading of ELT requirements, accident survivors will continue to be put at risk as a result of delayed rescue, lack of preparedness for harsh climatic conditions, and/or inadequate first aid treatment.

Therefore, the Board recommended that

the Department of Transport, using accepted risk management methodologies, create carrier-specific requirements for the carriage of first aid kits, survival equipment, and upgraded ELTs on all commercial aircraft.

**TSB Recommendation A96-08**

**Transport Canada's response to Recommendation A96-08 (September 1996)**

Survival Equipment

The current requirements for survival equipment, contained in ANO V; No. 12, the Carriage of Emergency Equipment and Radio Communication Systems in Sparsely Settled Areas Order, applied only to operations in sparsely settled areas. The new Canadian Aviation Regulations (CARs) address survival equipment for all aircraft operations. Except for certain conditions of lower risk as outlined in section 602.61 (2), which were reviewed as part of the Canadian Aviation Regulation Advisory Council (CARAC) process, section 602.61 of the new CARs requires that an aircraft flying over land must carry on board survival equipment sufficient for the survival on the ground of each person on board, given the geographical area, the season of the year and the anticipated seasonal climatic variations. This equipment must provide the means for starting a fire, providing a shelter, providing or purifying water and a means of visually signalling distress. Except for the means for starting a fire, aircraft that must carry life rafts over water must provide the same amenities.

In accordance with these regulations, the requirement for survival equipment becomes carrier-specific in that the carrier must demonstrate to Transport Canada that its survival kit meets the intent of the Regulation. The equipment must be inspected regularly in accordance with the inspection schedule set out in the carrier's operations manual. For flights over land, the operations manual must show how compliance with the CARs will be achieved, a list of survival equipment and information on how to use it must be on board, a survival manual appropriate for the season and climate must be available, and crew members must be trained in the operation and use of all emergency equipment. For flights over water where life rafts are carried, the rafts will be equipped with a survival kit containing the items listed in subsection 724.84(2) of the CARs.

First Aid Kits

Paragraph 2.5.2 of the Analysis section of the report states that although the first aid kit met the regulatory requirements, its contents were inadequate to deal with the types of injuries sustained in this accident.

The new CARs stipulate that the first aid kit shall meet the Aviation Occupational Safety and Health Regulations (OSH), Part X, Schedule II, for a type A or type B kit. The Aviation OSH Regulations clearly identify the specific items required as well as the quantities of each. The new CARs now identify the number of kits that must be carried, which varies with the number of passengers for which an aircraft is configured. For aeroplanes with more than 100 passenger seats, an approved emergency medical kit must be carried as well and must contain as a minimum the items listed in the CARs. This requirement is based on the accepted risk management methodology that statistically for every 100 passengers there will be a person with medical credentials sufficient to successfully handle the medical supplies

such as specific medicines (Epinephrine, Nitroglycerin tablets) and equipment (syringes and needles).

In addition to the above, Transport Canada has also established an Aviation OSH Regulations Review Working Group. This Working Group will be tasked to review the adequacy of the contents of first aid kits to deal with injuries to survivors of a crash.

#### Emergency Locator Transmitter (ELT)

Transport Canada feels that the adoption of the TSO C126 ELT would solve many of the problems with ELTs currently in use. The use of effective ELTs is currently being discussed within the Federal Aviation Administration (FAA) Aviation Rulemaking Advisory Committee (ARAC) of which Transport Canada is a member. The Part VI Technical Committee of the CARAC has been advised of the overall ELT issue. After the ARAC has completed its activities on the subject, the TCA Regulatory Committee will consider assigning this issue to the Part VI Technical Committee to study the ARAC findings in the Canadian context.

### **TSB assessment of Transport Canada's response to Recommendation A96-08 (November 1996)**

The Board was concerned that without appropriate guidelines for the carriage of enhanced first aid kits for post-crash use, and for the granting of waivers regarding the carriage of survival equipment, and without the upgrading of ELT requirements for all commercial passenger-carrying aircraft, accident survivors would continue to be put at risk as a result of delayed rescue, lack of preparedness for harsh climatic conditions, and/or inadequate first aid treatment. Therefore, the Board recommended that

the Department of Transport, using accepted risk management methodologies, create carrier-specific requirements for the carriage of first aid kits, survival equipment, and upgraded ELTs on all commercial aircraft.

The TC response addresses the issues of survival equipment, first aid kits and upgraded ELTs separately; the staff assessment follows this format.

#### Survival Equipment

The Board was concerned that, as with the previous Air Navigation Orders (ANOs), the new CARs would allow exemptions (waivers) to the survival equipment requirements, and that broad interpretations of the waivers would result in some air carriers being ill-equipped to provide for post-occurrence survival. Exact wording from the CARs was used as an example to illustrate an anomaly in TC's reasoning for the granting of waivers; yet, TC did not comment on the validity of this example, nor the "waiver" issue at all. Therefore, without an indication to the contrary, some air carriers having a higher risk of exposing accident survivors to harsh conditions and delayed rescue may still receive exemptions from outfitting their aircraft with critical survival equipment. As such, this part of the reply is assessed as **Unsatisfactory**.

#### First Aid Kits

The reply indicates that, in addition to the CARs stipulating that aircraft first aid kits must meet the Aviation Occupational Safety and Health (OSH) Regulations, TC has tasked the Aviation (OSH) Review Working Group to look at the adequacy of the contents of first aid kits to deal with injuries to survivors of a crash. Informal follow-up by TSB staff has determined that the Working Group review has been completed and some recommendations for improvements to the kits have been proposed. There was no information available as to what will be implemented and when. Since the first aid kits may be made more suitable for use in aircraft accidents, this part of the reply is assessed as **Satisfactory Intent**; however, there is as yet no commitment to correct the safety deficiency identified by the Board.

#### Emergency Locator Transmitters (ELTs)

TC indicates that the adoption of the (new) TSO C126 ELT would solve many of the problems with the ELTs currently in use. Considerable information is provided on the numerous stages of review that are either underway or will have to be done before the TSO is implemented. However, the reply does not provide any insight regarding approval or implementation dates for the better ELTs (even though the newer generation of ELTs (TSO C126) have been on trial since 1991). As stated in the preamble to the recommendation, the “success” record of the ELTs presently in service has been less than adequate. Therefore, considering that the shortcomings with the existing ELTs will apparently continue for the foreseeable future, this section of the reply is assessed as **Unsatisfactory**.

#### CONCLUSION

The substantiation for Recommendation A96-08 was not only based on the specific circumstances arising from the accident at Big Trout Lake, but also on the history of previously identified shortcomings with post-accident survivability and the apparent inaction over the years by both the aviation industry and Transport Canada to effectively address the problems. The deficiencies that were evident in the Big Trout Lake accident are representative of those that have existed for some time. In view of this reply to the latest Board recommendation, these deficiencies will continue for some time to put accident survivors at risk. Therefore, TC’s response to Recommendation 96-08 is assessed overall as **Unsatisfactory**.

#### STAFF COMMENT

Around 1990, TC adopted a “consultative” approach towards industry for the development of new safety regulations. While industry acceptance of any new regulations is required for effective implementation, the current situation is marked by a “wait and see attitude” by TC. Important safety issues are deferred through the consultative process to various working groups populated by industry representatives. Safety initiatives are often stymied by vested interests; industry sometimes drives the agenda to the lowest common denominator, de facto setting its own rules and standards. At best, progress in effecting significant change is slow; at worst, TC has abdicated its regulatory authority to industry.

In this instance, longstanding systemic risks to the survival of fare paying passengers in the remote regions of Canada persist. In spite of TC’s reasoned reply, apparently commercial considerations continue to supersede safety consideration. The chronology of events

pertaining to such a publicly sensitive issue would not stand up well to the rigorous scrutiny of a public inquiry.

Therefore, the response to Recommendation A96-08 is assessed as **Unsatisfactory**.

### **TSB reassessment of Transport Canada's response to Recommendation A96-08 (November 1997)**

The deficiencies that were evident in this accident have existed for some time. In view of current regulatory environment, these deficiencies will continue to put accident survivors at risk.

Therefore the assessment remains as **Unsatisfactory**.

### **TSB review of Recommendation A96-08 deficiency file status (April 2014)**

The Board requested that Recommendation A96-08 be reviewed to determine if the deficiency file status was appropriate. After an initial evaluation, it was determined that the safety deficiency addressed by Recommendation A96-08 still needed to be reassessed.

A request for further information was sent to Transport Canada and a reassessment will be conducted upon receipt of Transport Canada's response.

Therefore, the assessment remains as **Unsatisfactory**.

Consequently, the status of Recommendation A96-08 is changed to **Active**.

### **Transport Canada's response to Recommendation A96-08 (November 2018)**

TC agrees with the intent of the recommendation.

TC plans to address the recommendation through two approaches.

First, CAR 702, 703, and 704, reference CAR 602.60 for emergency equipment and first aid kits. TC will review the applicable regulations to identify where and what changes to existing regulations should be made to address the TSB recommendation. This exercise will be conducted as part of the Aviation Safety Regulatory Review currently underway.

Second, to address the Emergency Locator Transmitter (ELT) component of this recommendation, TC is continuing on the regulatory path to mandate the carriage of 406 MHz capable emergency beacons for Canadian registered aircraft and foreign aircraft operating in Canada. TC anticipates these regulations will be published in Canada Gazette, Part I, by winter 2019.

### **TSB reassessment of Transport Canada's response to Recommendation A96-08 (March 2019)**

A number of actions have been taken by Transport Canada (TC) to address the safety deficiency identified in Recommendation A96-08, regarding post-crash survivability issues

related to first aid kits, survival equipment and emergency locator transmitters (ELT) onboard commercial aircraft. These include the following:

- In 1996, new requirements for first aid kits and survival equipment came into effect under the *Canadian Aviation Regulations* (CARs). The CARs now require all aircraft to carry survival equipment sufficient for the survival of each occupant, given the geographical area, the season of the year and the anticipated seasonal climatic variations. Furthermore, aircraft required to carry life rafts have additional survival equipment requirements. Finally, the CARs and the *Aviation Occupational Health and Safety Regulations* prescribe the specific content and number of first aid kits that must be carried onboard commercial aircraft;
- As well, in 1996, TC stated that the adoption of the technical standard order (TSO) C126 ELT would address the ELT issues identified in Recommendation A96-08. TC further stated that it had raised this issue to the Federal Aviation Administration's (FAA) Aviation Rulemaking Advisory Committee (ARAC);
- In July 2015, TC stated that the CARs properly addressed requirements for the carriage of first aid kits and survival equipment. It further stated that existing CARs and Standards associated with ELTs were in the process of being amended;
- In November 2018, TC stated that:
  - it would review the applicable regulations for air carriers operating under CARs Subparts 702, 703 and 704 with respect to emergency equipment and first aid kits, and determine if changes are warranted; and
  - regulations mandating the carriage of 406 MHz capable ELTs, for Canadian registered aircraft and foreign aircraft operating in Canada, are expected to be published in the *Canada Gazette*, Part I in early 2019.

The Board believes that current CARs requirements, regarding post-crash survivability issues related to first aid kits and survival equipment onboard commercial aircraft, have substantially reduced the risks associated with the safety deficiency identified in Recommendation A96-08.

Therefore, this part of TC's response to Recommendation A96-08 is assessed as **Fully Satisfactory**.

With respect to ELT requirements, new regulations mandating the carriage of 406 MHz ELTs have yet to be published in the *Canada Gazette*, Part I. In June 2016, the Board issued several recommendations (A16-01, A16-02, A16-03, A16-04, A16-05, A16-06 and A16-07) calling for the improvement of various ELT requirements. These recommendations address and expand on the post-crash survivability issues identified in Recommendation A96-08 with respect to ELT requirements.

Moving forward, the TSB will monitor progress of the ELT issues identified in Recommendation A96-08 through the implementation of Recommendations A16-01, A16-02, A16-03, A16-04, A16-05, A16-06 and A16-07.

This deficiency file is **Closed**.