



REASSESSMENT OF RESPONSES TO AVIATION SAFETY RECOMMENDATION A00-05

ADDITIONAL EQUIPMENT REQUIREMENTS

Background

On 18 May 1998, a Pilatus PC-12 aircraft, serial number 151, was on a scheduled domestic flight from St. John's, Newfoundland, to Goose Bay, Labrador, with the pilot, a company observer, and 8 passengers on board. Twenty-three minutes into the flight, the aircraft turned back towards St. John's because of a low oil pressure indication. Eight minutes later, the engine (Pratt & Whitney PT6A-67B) had to be shut down because of a severe vibration. The pilot then turned towards Clarenville Airport, but was unable to reach the airfield. The aircraft was destroyed during the forced landing in a bog 1.5 miles from the Clarenville Airport. The pilot, the company observer and a passenger sustained serious injuries.

The Board concluded its investigation and authorized the release of report A98A0067 on 04 February 2000.

Board Recommendation A00-05 (24 March 2000)

Since the introduction of the Canadian single-engine instrument flight rules (SEIFR) authority in 1993, significant advances have been made in aircraft equipment technologies. Global Positioning System satellite navigation in commercial navigation is now common and automatic engine health and usage monitoring systems (HUMS) and advanced onboard oil debris monitoring systems that can detect non-ferrous oil debris particles are more available. The Australian regulatory authority has incorporated some of these newer systems into its SEIFR. The Australians have also required that electrical equipment, such as landing lights and radar/radio altimeters, be capable of being powered by the aeroplane's emergency electrical supply system (battery). There are several other equipment requirements listed in the Australian rule that are not part of the Canadian rule, but which are worthy of consideration. These items include:

- passenger seats that have been dynamically tested to meet the standards of at least Federal Aviation Regulation (FAR) 23 amendment 36;
- an approved shoulder harness or a safety belt with a diagonal shoulder strap for each passenger seat;
- airborne weather radar equipment;
- a HUMS; and
- an engine fire warning system.

These items would help either to prevent a loss of engine power or to lessen the adverse consequences of an engine-out occurrence.

The 1993 Canadian SEIFR policy was ground-breaking and has led the way for other regulatory agencies to introduce SEIFR. However, it appears that the subsequent rule-making activity by these other aviation authorities is resulting in SEIFR equipment requirements that are more stringent than the Canadian rule. New aircraft equipment technologies and changes to how old equipment is fitted on SEIFR aircraft could serve to lessen the occurrence or consequence of a SEIFR engine failure. Therefore, the Board recommends that:

The Department of Transport review the equipment standard for SEIFR and include equipment technologies that would serve to further minimize the risks associated with SEIFR flight.

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Transport Canada's Response to A00-05 (21 June 2000)

In its response, Transport Canada (TC) indicated that it concurred with this recommendation and will review the applicable equipment requirements for SEIFR operations, with a view to mitigating to the extent possible the risks associated with this type of flight. The efforts in implementing the Board's recommendations on engine monitoring systems, additional oxygen supply and additional electrical power will be an integral part of this review. The results of this review will be consulted through the Canadian Aviation Regulation Advisory Council (CARAC) on any proposed regulatory changes.

Board Assessment of Transport Canada's Response to A00-05 (13 September 2000)

In its response, TC indicated that it concurred with this recommendation and will review the applicable equipment requirements for SEIFR operations, with a view to mitigating to the extent possible the risks associated with this type of flight. The efforts in implementing the Board's recommendations on engine monitoring systems, additional oxygen supply and additional electrical power will be an integral part of this review. The results of this review will be consulted through CARAC on any proposed regulatory changes.

Given that safety action will not take place until after the consultative process with CARAC, the response is assessed as "**Satisfactory Intent**".

Next TSB Action (13 September 2000)

The TSB staff will continue to monitor TC's future actions related to this recommendation and will update this assessment if appropriate.

Board Reassessment of A00-05 (09 June 2004)

TC's proposed changes to the Commercial Air Services Standard (CASS) (Notice of Proposed Amendment 2000-257 refers) have not yet been implemented. Although accepted by CARAC, the proposed changes to CASS 726.07 are presently at the Department of Justice for legal review.

Given that the proposed changes have not yet been implemented, the response is assessed as "**Satisfactory Intent**".

Next TSB Action (09 June 2004)

The TSB staff will continue to monitor TC's future actions related to this recommendation and will update this assessment if appropriate.

Board Reassessment of A00-05 (11 May 2005)

The CASS 723.22 has been amended to include subsection 2 (h) "an electronic means of rapidly determining and navigating to the nearest suitable airfield for an emergency landing."

Because this action will substantially reduce or eliminate the safety deficiency the assessment is changed to "**Fully Satisfactory**".

Next TSB Action (11 May 2005)

Nil.

This deficiency file is assigned an "**Inactive**" status.