



REASSESSMENT OF THE RESPONSE TO AVIATION SAFETY RECOMMENDATION A95-09

Standby attitude indicators

Background

On 10 November 1993, a Hawker Siddeley HS 748 Series 2A aircraft, owned and operated by Air Manitoba Limited (Air Manitoba), departed Winnipeg, Manitoba, on a scheduled flight that included stops at Sandy Lake, Ontario; St. Theresa Point, Manitoba; Island Lake, Manitoba; and return to Winnipeg. On arrival at Sandy Lake, the crew attempted to land but was unable to because of the low ceiling and visibility. They then diverted to St. Theresa Point. After a normal turnaround, the flight returned to Sandy Lake. The aircraft took off from Sandy Lake and immediately entered a right turn. After turning through approximately 120 degrees, the aircraft descended into 100-foot trees and crashed. The aircraft struck the ground about one nautical mile northwest of the airport. All seven occupants of the aircraft were fatally injured, and the aircraft was destroyed.

The Board determined that, after takeoff, the crew most likely lost situational awareness and, as a result, did not detect the increasing deviation from their intended flight path. Contributing to the loss of situational awareness was the lack of AC power to some of the flight instruments; the reason for the lack of AC power could not be determined.

As a result of this accident, the Board issued 4 aviation safety recommendations.

The Board concluded its investigation and released Aviation Investigation Report A93H0023 on 14 March 1995.

Board Recommendation A95-09 (March 1995)

Large turbo-prop aircraft, some capable of seating more than 50 passengers, are in wide use in Canada because of their suitability for commuter operations and for flights into remote or smaller airports. A significant proportion of all passengers transported annually by Canadian air carriers are in such turbo-prop aircraft.

Many of these turbo-prop aircraft have a passenger-carrying capacity equivalent to that of mid-sized turbo-jet aircraft. Yet, unlike their turbo-jet counterparts, turbo-prop aircraft are not required to have either a standby attitude indicator or a ground proximity warning system (GPWS). Transport Canada (TC) is currently revising the *Canadian Aviation Regulations* respecting the use of aircraft in a commercial air service through an advisory committee process. The regulatory committee will focus, in part, on maximizing the compatibility of the Canadian regulatory system with that of other regulatory authorities such as the Federal Aviation Administration (FAA) in the United States.

The attitude indicator or artificial horizon is the pilot's primary reference for instrument flying at night, in low visibility, or in cloud. A standby attitude indicator provides a means to cross-check and validate information supplied by the primary attitude indicators and also serves as an independently powered backup system should the primary instruments fail.

In the United States, an independently powered standby attitude indicator has been a requirement on all turbine-powered large aircraft since October 1994 with no distinction made between turbo-jet and turbo-prop aircraft. The Board believes that the need for a standby attitude indicator on an aircraft should not be related to the method of aircraft propulsion; rather, the role of the aircraft and its passenger-carrying capacity are better indicators of the need for added safety precautions. Given the increased safety margin provided by a standby attitude indicator in the event of failure of the primary attitude indicator, the Board recommends that:

The Department of Transport require the installation of an independently powered standby attitude indicator on all turbine-powered, IFR- approved commuter and airline aircraft capable of carrying 10 or more passengers.

TSB Recommendation A95-09

Transport Canada's response to Recommendation A95-09 (June 1995)

The Additional Bank and Pitch Indicator Order (A.N.O., Series II, No. 17) presently requires large turbo-jet aeroplanes to be equipped with a standby attitude indicator.

The draft *Canadian Aviation Regulations* (CARs) have recently been amended to require installation of a standby attitude indicator in all turbine-powered commercial aeroplanes certified to *Federal Aviation Regulations* (FAR), Part 25 or equivalent. This amendment will require the HS 748 to be so equipped. The CARs are scheduled to be published in Part I of the *Canada Gazette* in late June 1995, and in Part II of the *Canada Gazette* in the fall of 1995.

This requirement does include all airline turbine aircraft, but not all commuter aircraft in the 10- to 19-passenger seat range. Transport Canada Aviation will refer the recommendation to the Canadian Aviation Regulation Advisory Council, Part VII Technical Committee for analysis, including cost/benefit, to determine if the regulations should be expanded to include all commuter aircraft.

Board assessment of the response to Recommendation A95-09 (July 1995)

Transport Canada's reply does not indicate whether it accepts or rejects this recommendation. However, Transport Canada (TC) has taken the initiative and recently prepared an amendment to the draft *Canadian Aviation Regulations* (CARs) to require a standby attitude indicator on all airline turbine aircraft (including the HS 748). While commuter aircraft in the 10- to 19-passenger seat range are not included in this requirement, TC will refer this aspect of the Recommendation to the Canadian Aviation Regulation Advisory Council (CARAC) for analysis. The CARAC Regulatory Committee will then review this analysis prior to making a decision on whether to expand the regulation to commuter aircraft.

In the interim, as TC has amended the draft CARs to require a standby attitude indicator on all airline turbine aircraft.

Therefore, the response to Recommendation A95-09 is assessed as **Satisfactory in Part**.

Board reassessment of the response to Recommendation A95-09 (November 1996)

Transport Canada has amended *Canadian Aviation Regulations* (CARs) 605.41 to require a standby attitude indicator on all turbo-jet aircraft under Part VII and, as of 31 July 1997, all transport category aircraft.

The response to Recommendation A95-09 is therefore assessed as **Satisfactory in Part**.

Board reassessment of the response to Recommendation A95-09 (November 1997)

Transport Canada has amended *Canadian Aviation Regulations* (CARs) 605.41 to require a standby attitude indicator on all turbo-jet aircraft under Part VII and, as of 31 July 1997, all transport category aircraft. However, it does not require a standby attitude indicator for the non-turbo-jet commuter category.

The response to Recommendation A95-09 is therefore assessed as **Satisfactory in Part**.

Board reassessment of the response to Recommendation A95-09 (February 2004)

As stated in the November 1997 reassessment, *Canadian Aviation Regulations* (CARs) 605.41 requires standby indicator on all turbo-jet aircraft operating under Part VII, and all transport category aircraft as of July 1997. However, it still does not require a standby attitude indicator for the non-turbo-jet commuter category.

As such, further action is unwarranted with respect to A95-09 and the status of the recommendation is set to **Inactive**.

Board review of Recommendation A95-09 deficiency file status (April 2014)

The Board requested that A95-09 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 A95-09 needed to be reassessed.

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

Therefore, the assessment of the response to Recommendation A95-09 remains **Satisfactory in Part**.

Consequently, the status of Recommendation A95-09 is changed to **Active**.

Transport Canada's response to Recommendation A95-09 (July 2015)

Transport Canada agrees with this recommendation.

This regulatory requirement has been properly addressed in *Canadian Aviation Regulations* (CARs) 605.41 Third Attitude Indicator.

Board reassessment of the response to A95-09 (March 2016)

As indicated in Transport Canada's July 2015 response, *Canadian Aviation Regulations* (CARs) 605.41 Third Attitude Indicator does address and should substantially reduce or eliminate the safety deficiency identified in Recommendation A95-09.

Therefore, the response to Recommendation A95-09 is assessed as **Fully Satisfactory**, and no further action is required.

This deficiency file is **Closed**.