Aviation Safety Investigation Report 199600254

Saab Aircraft AB 340

19 January 1996

Readers are advised that the Australian Transport Safety Bureau investigates for the sole purpose of enhancing transport safety. Consequently, Bureau reports are confined to matters of safety significance and may be misleading if used for any other purposes.

Investigations commenced on or before 30 June 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with Part 2A of the Air Navigation Act 1920.

Investigations commenced after 1 July 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with the Transport Safety Investigation Act 2003 (TSI Act). Reports released under the TSI Act are not admissible as evidence in any civil or criminal proceedings.

NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Aviation Safety Investigation Report

199600254

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number: 199600254 **Occurrence Type:** Incident
Location: 37km W Canberra, Aerodrome
State: ACT **Inv Category:** 4
Date: Friday 19 January 1996
Time: 1854 hours **Time Zone** ESuT
Highest Injury Level: None

Aircraft Manufacturer: Saab Aircraft AB
Aircraft Model: SF-340B
Aircraft Registration: VH-TCH **Serial Number:** 362
Type of Operation: Air Transport Domestic Low Capacity Passenger Scheduled
Damage to Aircraft: Nil
Departure Point: Sydney NSW
Departure Time:
Destination: Albury NSW

Approved for Release: Tuesday, December 3, 1996

The pilot reported that during cruise at Flight Level 180, at an outside air temperature (OAT) of -6 degrees Celsius (C) in clear air, with the engine anti-ice selected OFF, the left engine suffered two minor reductions in power (rollbacks). During the first rollback, the engine ignition light illuminated, but did not illuminate during the second occurrence, which occurred approximately 5 minutes later. Some 10 minutes prior to the the first rollback, the aircraft had been operating in icing conditions, with the engine anti-ice systems turned ON.

The pilot reported that during the climb-out from Sydney, the indicated OAT was observed to rise from -2 degrees C to approximately +10 degrees C and then slowly reduce to the lower value. There was no apparent change to the ice being carried on the airframe at the time. The crew concluded that the OAT measurement system must have been in error.

Subsequent maintenance action found an obstruction in the OAT probe which would cause it to read in error, affecting the proper operation of the engine anti-ice system. It was also considered that the engine rollbacks probably resulted from pieces of ice breaking away from an earlier buildup in the engine air intake.

SAFETY ACTION

Investigation of this incident revealed a problem associated with engine power interruptions on SAAB 340 aircraft. The problem was attributed to ice build-up in the engine intakes subsequently breaking free and being ingested into the engine. This resulted in a momentary power interruption. The investigation also revealed that the manufacturer had initiated a SAAB 340 power interruption improvement program in October 1994 to find a solution to the power interruption problem. The program involves the individual manufacturers of the engine anti-ice systems (General Electric, Cox, and Aerospace Composite Technologies, formerly Lucas), and aims to develop an improved engine anti-ice system.

Proposed design solutions are presently being trialled on SAAB 340 aircraft from several airlines around the world, including the operator of the aircraft in this occurrence. Once a design solution has been finalised, it will be introduced into new production aircraft and offered as a service bulletin to in-service aircraft.

The operator in this occurrence reported that its SAAB 340 aircraft experience "rollbacks" several times per year. Both SAAB and the operator require the engine anti-ice system to be selected on whenever the OAT indicates below +5 degrees C in the presence of visible moisture. In this instance, the proper application of the engine anti-ice system was not possible due to the erroneous readings provided to the crew by the OAT system.

As a result of the investigation into this occurrence, the Bureau of Air Safety Investigation forwarded the following Interim Recommendation IR960144 to the Civil Aviation Safety Authority on 29 November 1996.

"The Bureau of Air Safety Investigation recommends that the Civil Aviation Safety Authority actively monitor the SAAB 340 Power Interruption Improvement Program and ensure that Australian operators are aware of the program and of the outcomes."