Australian Government
Australian Transport Safety Bureau

ATSB TRANSPORT SAFETY INVESTIGATION REPORT
Aviation Occurrence Investigation – 200605561
Final

Powerplant/propulsion event – Sydney Airport, NSW
20 September 2006
VH-RXE
SAAB Aircraft AB SF-340B

Australian Government

Australian Transport Safety Bureau

ATSB TRANSPORT SAFETY INVESTIGATION REPORT

Aviation Occurrence Investigation
200605561

Final

Powerplant/propulsion event
Sydney Airport, NSW
20 September 2006
VH-RXE
SAAB Aircraft AB SF-340B

Published by: Australian Transport Safety Bureau
Postal address: PO Box 967, Civic Square ACT 2608
Office location: 15 Mort Street, Canberra City, Australian Capital Territory
Telephone: 1800 621 372; from overseas + 61 2 6274 6440
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117; from overseas + 61 2 6247 3117
E-mail: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

ISBN and formal report title: see 'Document retrieval information' on page iii.

DOCUMENT RETRIEVAL INFORMATION

Report No.	Publication date	No. of pages	ISBN
200605561	31 March 2008	5	978-1-921490-04-0

Publication title

Powerplant/propulsion event – Sydney Airport, NSW, 20 September 2006, VH-RXE, SAAB AB SF-340B.

Prepared by

Australian Transport Safety Bureau
PO Box 967, Civic Square ACT 2608 Australia
www.atsb.gov.au

Reference No.

Mar2008/Infrastructure 08076

Abstract

The crew of a SAAB SF340B reported that shortly after takeoff from Sydney Airport, NSW, they observed a zero reading on the left torque gauge and advised air traffic control that they were returning to land. During the approach, the crew made a PAN broadcast and advised that the left engine had been shut down. After landing the crew reported that they experienced airframe vibration and suspected a tyre had blown on landing. An inspection by emergency services personnel did not find any damage to the tyres and the crew taxied the aircraft to the terminal apron.

An examination of the aircraft systems could not find any reason for the zero reading on the left torque gauge, but the left digital engine control unit was replaced. A review of the crew's actions after they observed the loss of torque indication on the left torque gauge, found that they had selected the 'autocoarsen' switch to ON, prior to landing. That was contrary to directions in the flight crew operations manual that required the switch to be selected OFF when torque gauge indications read zero or were erratic. Consequently, the left propeller blades were automatically coarsened, effectively feathering the left propeller and resulted in an asymmetric landing.

The operator issued a notice to its aircrew reminding them of the requirement in the flight crew operations manual to not select 'autocoarsen' in these circumstances.

THE AUSTRALIAN TRANSPORT SAFETY BUREAU

The Australian Transport Safety Bureau (ATSB) is an operationally independent multi-modal bureau within the Australian Government Department of Infrastructure, Transport, Regional Development and Local Government. ATSB investigations are independent of regulatory, operator or other external organisations.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to enhance safety. To reduce safety-related risk, ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not the object of an investigation to determine blame or liability. However, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to proactively initiate safety action rather than release formal recommendations. However, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation, a recommendation may be issued either during or at the end of an investigation.

The ATSB has decided that when safety recommendations are issued, they will focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on the method of corrective action. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations. It is a matter for the body to which an ATSB recommendation is directed (for example the relevant regulator in consultation with industry) to assess the costs and benefits of any particular means of addressing a safety issue.

About ATSB investigation reports: How investigation reports are organised and definitions of terms used in ATSB reports, such as safety factor, contributing safety factor and safety issue, are provided on the ATSB web site www.atsb.gov.au.

FACTUAL INFORMATION

The information presented below, including any analysis of that information, was prepared principally from information supplied to the Bureau.

On 20 September 2006, the crew of a SAAB Aircraft AB SF340B aircraft, registered VH-RXE, were on a scheduled flight from Sydney, NSW to Merimbula, NSW. The crew reported that, shortly after takeoff, at about 1444 Eastern Standard Time[1], they observed a zero reading on the left torque gauge and a 2 to 3 second, simultaneous illumination of the left ignition light. All other engine indications were normal and the crew climbed the aircraft to 8,000 ft and assessed the situation. They elected to return for a landing and advised air traffic control. At approximately 1,000 ft on final approach, the crew reported that the left propeller began to 'autocoarsen'. They transmitted a PAN[2] broadcast and landed. Vibrations experienced during the landing were thought by the crew to be from a blown landing gear tyre and emergency services were requested. After establishing that none of the aircraft's tyres was damaged, the crew taxied the aircraft to the terminal apron.

An examination of the engine and its sensors and control systems by the operator's engineering personnel did not detect any faults. The digital engine control unit was replaced and subsequent engine tests were unable to reproduce the problem. The aircraft was returned to service.

A review of the crew's actions prior to landing with a faulty left torque gauge indication revealed that they had selected 'autocoarsen' as required for normal operations. A note in the SAAB flight crew operating manual (3.17 - Normal Approach Procedures) stated that a check should be made for normal torque gauge readings prior to selecting the 'autocoarsen' switch to ON. It advised that in the event of a faulty torque gauge indication, either zero or an erratic reading, the 'autocoarsen' switch should not be selected ON to avoid a possible inadvertent 'autocoarsen' event.

The cause of the zero reading on the left torque indicator was not established, but was most likely the result of an intermittent fault in the digital engine control unit. However, the subsequent abnormal flight condition resulted from the crew selecting 'autocoarsen' prior to landing, with a zero or erratic torque gauge indication. That was contrary to directions in the flight crew operating manual. Although an asymmetric (one engine inoperative) approach and landing was completed without any difficulty, had the crew used the correct procedure and not selected 'autocoarsen', power from both engines would have been available for the remaining approach and a normal landing could have been made.

As a result of this occurrence, the operator issued a Notice to Aircrew (NOTAC) drawing to the attention of its SAAB crews the note in the flight crew operating manual relating to the selection of 'autocoarsen' with faulty torque gauge indications.

---

1 The 24-hour clock is used in this report to describe the local time of day, Eastern Standard Time (EST), as particular events occurred. Eastern Standard Time was Coordinated Universal Time (UTC) + 10 hours.

2 Radio code indicating uncertainty or alert.