



Australian Government

Australian Transport Safety Bureau

ATSB TRANSPORT SAFETY INVESTIGATION REPORT

Aviation Safety Occurrence Report – 200605843

Preliminary

**In-flight break-up
20 km NE Bathurst, NSW
BAC 167 Strikemaster, VH-AKY
5 October 2006**



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In-flight break-up, 20 km NE Bathurst, NSW, BAC 167 Strikemaster VH-AKY, 5 October 2006

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Abstract

The aircraft wreckage, located in a forest, was destroyed by impact forces and a post-impact fire. The pilot and a passenger were fatally injured.

The investigation is continuing.

THE AUSTRALIAN TRANSPORT SAFETY BUREAU

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

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. Accordingly, the ATSB also conducts investigations and studies of the transport system to identify underlying factors and trends that have the potential to adversely affect safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and, where applicable, relevant international agreements. The object of a safety investigation is to determine the circumstances in order to prevent other similar events. The results of these determinations form the basis for safety action, including recommendations where necessary. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations.

It is not the object of an investigation to determine blame or liability. However, it should be recognised that an investigation report must include factual material of sufficient weight to support the analysis and findings. That material will at times contain information reflecting on the performance of individuals and organisations, and how their actions may have contributed to the outcomes of the matter under investigation. 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.

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. While the Bureau issues recommendations to regulatory authorities, industry, or other agencies in order to address safety issues, its preference is for organisations to make safety enhancements during the course of an investigation. The Bureau prefers to report positive safety action in its final reports rather than making formal recommendations. Recommendations may be issued in conjunction with ATSB reports or independently. A safety issue may lead to a number of similar recommendations, each issued to a different agency.

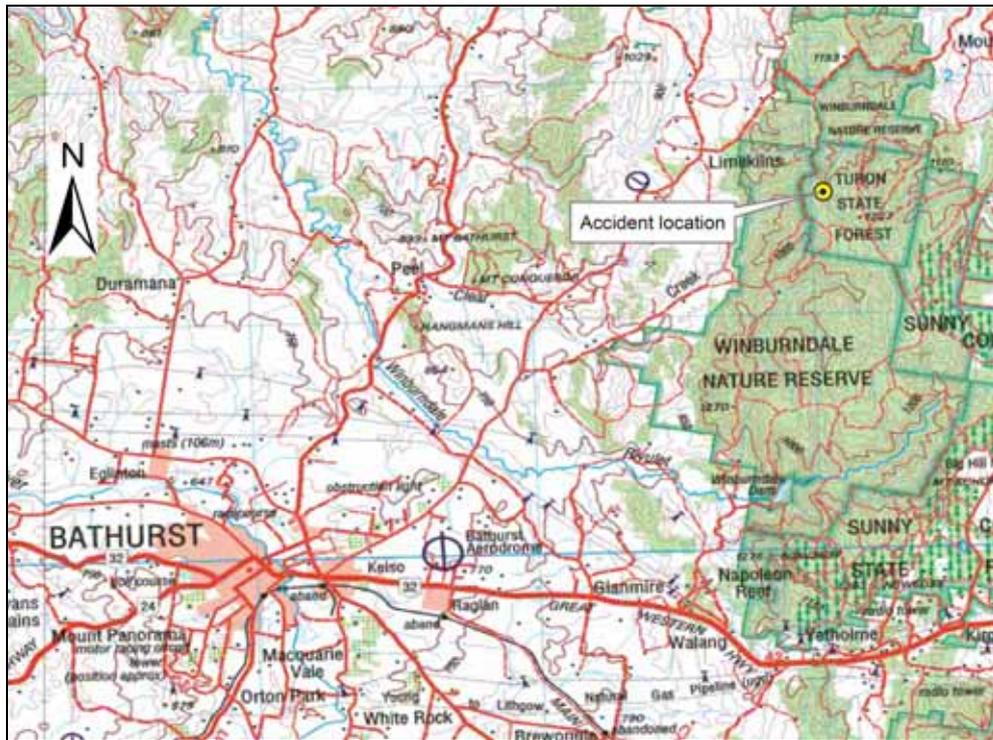
The ATSB does not have the resources to carry out a full cost-benefit analysis of each safety recommendation. The cost of a recommendation must be balanced against its benefits to safety, and transport safety involves the whole community. Such analysis is a matter for the body to which the recommendation is addressed (for example, the relevant regulatory authority in aviation, marine or rail in consultation with the industry).

FACTUAL INFORMATION

History of the flight

At about 1215 Eastern Standard Time¹ on 5 October 2006, the pilot of a British Aircraft Corporation 167 Strikemaster aircraft took off from Bathurst, NSW, for a 25-minute joy flight with one passenger. The flight was briefed to include high-level aerobatics followed by a low-level simulated strike mission. During the low-level phase of the flight, the aircraft's right wing separated from the fuselage and the aircraft broke up. The remaining sections of the aircraft subsequently impacted the ground and were substantially damaged by impact forces and a post-impact fire (figures 1 and 2). The ground impact ignited a large bushfire, which took several days to contain and destroyed most of the aircraft wreckage. The pilot and passenger were fatally injured.

Figure 1. Accident location



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.

Figure 2. Main aircraft wreckage



Pilot information

The pilot held a Commercial Pilot (Aeroplane) Licence endorsed for the Strikemaster aircraft type and was approved for low-level aerobatic flight to a minimum height of 500 ft above ground level. He held a Class 1 civil aviation medical certificate and, according to his *Pilot's Logbook*, he had accumulated about 2,220 hours total aeronautical experience, about 835 hours on the aircraft type and about 2 hours in the last 30 days.

Wreckage information

An on-site examination of the wreckage revealed that:

- the engine was producing significant power at the time of impact
- the wing flaps and landing gear were retracted
- the right wing had separated in-flight
- tail components had separated from the aircraft in overload as a consequence of separation of the right wing.

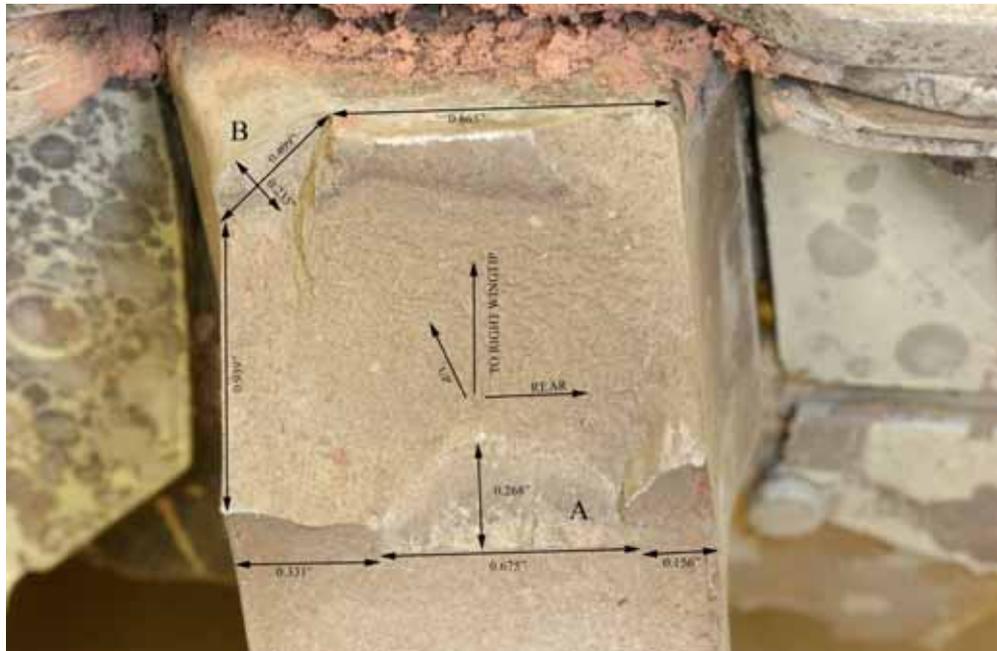
The separation of the right wing had initiated from the upper wing main spar attachment lug (figure 3) under downward bending conditions. The investigation found two areas of pre-existing fatigue cracking in the wing attachment lug, identified as positions A and B (figure 4). Area A was the larger of the two, with an

origin at the lug bore surface. Area B appears to have initiated from an area of prior surface/corner blending, which had possibly been carried out for previous defect removal purposes.

Figure 3. Fracture surface location



Figure 4. Fracture surface and dimensions



The investigation is continuing and will include a review of:

- the servicing history and Non-Destructive Inspection (NDI) examinations conducted on the aircraft
- the service information provided to detect wing attachment lug cracks in Strikemaster aircraft
- the system of dissemination of service information to operators of Strikemaster aircraft, and
- operational issues.

SAFETY ACTION

As a result of this occurrence, the ATSB briefed the Civil Aviation Safety Authority (CASA) on preliminary findings relating to the wing failure. CASA released *Airworthiness Bulletin AWB 02-018 Issue 1* on 10 October 2006 and subsequently, *Airworthiness Bulletin AWB 02-018 Issue 2* on 20 October 2006. The bulletins were applicable to all BAC 167 Strikemaster and Jet Provost aircraft.

A copy of the bulletin can be found on the CASA website at <http://www.casa.gov.au/airworth/awb/index.htm> or by telephoning CASA on 131 757.