



**Australian Government**

**Australian Transport Safety Bureau**

# Runway overrun involving an Aero Commander 500, VH-WZV

Badu Island (ALA), Queensland, 8 March 2015

**ATSB Transport Safety Report**  
Aviation Occurrence Investigation  
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#### **Addendum**

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# Runway overrun involving an Aero Commander 500, VH-WZV

## What happened

On 8 March 2015, the pilot of an Aero Commander 500 aircraft, registered VH-WZV, prepared to conduct a charter flight from Badu Island to Horn Island, Queensland, with five passengers. The aircraft had been refuelled earlier that day at Horn Island, where the pilot conducted fuel drains with no contaminants found. He had operated the aircraft for about 2 hours prior to landing at Badu Island with no abnormal performance or indications.

At about 1330 Eastern Standard Time (EST), the pilot started the engines and conducted the standard checks with all indications normal, obtained the relevant clearances from air traffic control, and taxied for a departure from runway 30. As the pilot lined the aircraft up on the runway centreline at the threshold, he performed a pre-take-off safety self-brief and conducted the pre-take-off checks. He then applied full power, released the brakes and commenced the take-off run. All engine indications were normal during the taxi and commencement of the take-off run.

When the airspeed had increased to about 80 kt, the pilot commenced rotation and the nose and main landing gear lifted off the runway. Just as the main landing gear lifted off, the pilot detected a significant loss of power from the left engine. The aircraft yawed to the left, which the pilot counteracted with right rudder. He heard the left engine noise decrease noticeably and the aircraft dropped back onto the runway. The pilot immediately rejected the take-off; reduced the power to idle, and used rudder and brakes to maintain the runway centreline.

The pilot initially assessed that there was sufficient runway remaining to stop on but, due to the wet runway surface, the aircraft did not decelerate as quickly as expected and he anticipated that the aircraft would overrun the runway. As there was a steep slope and trees beyond the end of the runway, he steered the aircraft to the right towards more open and level ground. The aircraft departed the runway to the right, collided with a fence and a bush resulting in substantial damage (Figure 1). The pilot and passengers were not injured.

**Figure 1: Damage to VH-WZV**



Source: Aircraft engineer

### **Engineering inspection**

An engineering inspection was carried out following the incident. The engineer reported that both engines started and ran without problems and that he ran both engines to full power for sufficient time to establish that there were no obvious defects with the engines and that both engines produced full power. The magneto drop checks were within limits and fuel flows were normal. Both engines appeared to be in their normal configuration with the appropriate quantities of oil and no defects were noted.

The engineer also reported that there was adequate fuel on board the aircraft, and no contaminants were present in the fuel. The engineer verified that the propeller operation and feather checks were functional.

### **Pilot comments**

The pilot reported that the fuel for both engines was selected to ON. At no time had either been selected to OFF, as it was not normal procedure to switch the fuel off when shutting the aircraft down.

### **Operator report**

A report prepared by the aircraft operator, and provided to the ATSB, included the following:

- Due to the prevailing conditions of a wet runway and the extremely powerful brakes fitted to the aircraft type, the wheels locked up and the aircraft skidded off the end of the runway. The operator stated that it was easy to aquaplane or lock the brakes in wet or emergency situations.
- The aircraft was loaded within the weight and balance limitations and was 67 kg below the take-off weight for the available runway length, based on the approved performance charts.
- Passengers on the flight commented on a problem with the left engine at the time of the incident.
- Further engineering assessment of the engine and ancillaries will include fuel on board, fuel pumps (engine driven and electric), fuel control unit, magneto ignition systems, engine air intake system and other systems likely to contribute to a loss of engine power.

### **Safety message**

In this incident the pilot had identified the safest run-off area in the event of an engine failure. Having completed a thorough pre-take-off safety briefing, following partial engine failure, the pilot was able to steer the aircraft to a relatively clear area that he had identified. This may have reduced the amount of damage the aircraft sustained, and the potential for injuries to the pilot and passengers.

The ATSB publication *Avoidable Accidents No. 3 – Managing partial power loss after takeoff in single-engine aircraft*, available at [www.atsb.gov.au/publications/2010/avoidable-3-ar-2010-055.aspx](http://www.atsb.gov.au/publications/2010/avoidable-3-ar-2010-055.aspx), states that a pre-flight safety brief, including planning a rejected take-off, gives pilots a much better chance of maintaining control of the aircraft, and helps the pilot respond immediately in the event of a partial loss of engine power.

## General details

### Occurrence details

Date and time:	8 March 2015 – 1230 EST	
Occurrence category:	Accident	
Primary occurrence type:	Runway excursion	
Location:	Badu Island (ALA), Queensland	
	Latitude: 10° 09.00' S	Longitude: 142° 10.45' E

### Aircraft details

Manufacturer and model:	Aero Commander 500-U	
Registration:	VH-WZV	
Serial number:	1656-11	
Type of operation:	Charter - Passenger	
Persons on board:	Crew – 1	Passengers – 5
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Substantial	

## About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

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.

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

It is not a function of the ATSB to apportion blame or determine liability. At the same time, 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.

## About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.