



Australian Government

Australian Transport Safety Bureau

Engine failure involving a Beech Aircraft Corp D17-S, VH-FNS

12 km ESE of Bunbury Airport, Western Australia on 31 May 2014

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Addendum

Page	Change	Date

Engine failure involving a Beech Aircraft Corp D17-S, VH-FNS

What happened

On 31 May 2014 at about 1322 Western Standard Time, a Beech Aircraft Corp D17-S, registered VH-FNS (FNS), was being used to conduct a private flight from Crooked Brook landing area to Geraldton airport, Western Australia. The flight was conducted in visual meteorological conditions and the pilot was the only person on board.

After departure, the pilot tracked FNS in a northerly direction and climbed to an altitude of about 2,500 feet above mean sea level (AMSL). About a minute after setting the engine to cruise power, the pilot felt a violent vibration with an associated decrease in engine power. The pilot described the engine as 'surging' and 'back-firing'. The pilot conducted initial troubleshooting and was unable to identify a reason for the engine malfunction. The vibration ceased and the engine was no longer producing power but the propeller was windmilling. The pilot elected to leave the landing gear retracted and set up a glide approach tracking to the north-east to locate a more suitable landing area to conduct a forced landing. A suitable paddock was identified that was near a house. The aircraft flew over a line of tall trees and then clipped a fence that was next to a private road leading to the house, went through a second fence on the other side of the road, which partially arrested the aircraft. It then impacted a large log and came to rest (Figure 1). A passer-by assisted the pilot to evacuate the aircraft. The pilot was seriously injured and transported to hospital and the aircraft was substantially damaged.

Figure 1: Accident site



Source: Aircraft owner

Pilot comment

The pilot reported that he had conducted a pre-takeoff brief covering the actions and considerations in relation to an engine failure. The pilot also indicated that he had flight planned to cruise at an altitude of 4,500 feet AMSL but amended this to 2,500 feet AMSL due to the increase in wind speed at altitude.

The pilot reported that the engine was subsequently examined and that a hole was located in the number five cylinder wall (Figure 2). Extensive internal damage was found and the reason for the internal engine failure could not be determined. The pilot indicated that the engine had failed at about 223 hours since it was last overhauled and that the specified time between engine overhauls was 1,000 hours.

Figure 2: External view of damage to number five cylinder



Source: Aircraft owner

Safety message

Pilots should consider the effect an in-flight engine failure at different altitudes has on the time available to manage that failure and identify a suitable forced landing area. In this instance the pilot had enough time to manoeuvre towards a different area.

The ATSB booklet Avoidable Accidents No. 3 - Managing partial power loss after take-off in single-engine aircraft (available at www.atsb.gov.au/publications/2010/avoidable-3-ar-2010-055.aspx) contains information that is also relevant to a complete engine power loss.

The booklet highlights the importance of:

- pre-flight decision making and planning for emergencies and abnormal situations for the particular aerodrome including a thorough pre-flight self-brief covering the different emergency scenarios.

- conducting a thorough pre-flight and engine ground run to identify any issues that may lead to an engine failure.
- taking positive action and maintaining aircraft control either when turning back to the aerodrome or conducting a forced landing until on the ground, while being aware of flare energy and aircraft stall speeds.

General details

Occurrence details

Date and time:	31 May 2014 – 1330 WST	
Occurrence category:	Accident	
Primary occurrence type:	Engine failure	
Location:	12 km ESE of Bunbury Airport, Western Australia	
	Latitude: 33° 24.12' S	Longitude: 115° 48.15' E

Aircraft details

Manufacturer and model:	Beech Aircraft Corp D17-S	
Registration:	VH-FNS	
Serial number:	3108	
Type of operation:	Private	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – 1	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.