



Australian Government

Australian Transport Safety Bureau

Engine failure involving a Cessna C206, VH-YOT

4 km ENE Newman Airport, Western Australia on 17 February 2014

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Addendum

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Engine failure involving a Cessna C206, VH-YOT

What happened

On 17 February 2014, a Cessna C206 aircraft, registered VH-YOT, departed runway 05 at Newman Airport, Western Australia, at about 0526 Western Standard Time (WST) for a charter flight to Cotton Creek in visual meteorological conditions. The pilot was the only occupant.

About 3 minutes after take-off, while in the climb and at about 1,500 feet above ground level, the pilot conducted a scan of the aircraft instruments and noticed that the engine oil pressure gauge was indicating zero. All the other engine instrument indications were in the normal range and the pilot tapped the oil pressure gauge but the indicator did not move. The pilot turned the aircraft back towards Newman airport. About 1 minute later, the pilot observed sparks coming from the engine cowling near the propeller, the engine power decreased and a severe vibration was felt through the airframe. The pilot pulled the mixture control to lean cut off to stop fuel flowing to the engine as he was concerned about an inflight fire and the propeller stopped rotating.

The pilot determined that he would not be able to glide to runway 23 and began a scan to locate a suitable landing area that was away from power lines in the area. The pilot located a paddock that was about 4 km from the airport that appeared to be a suitable landing area and was near a dirt road. As the aircraft got closer to the landing area, the pilot could see what he initially thought was small shrubs, was actually medium sized trees. Prior to landing, the pilot shut down all non-essential aircraft systems.

On landing, the left wing impacted a tree and the aircraft spun around 180 degrees. The left wing was bent obstructing the only cockpit exit door. The fuel system had been disrupted and fuel was quickly entering the cockpit area. The pilot shut down all remaining systems and climbed into the rear section of the aircraft. The forward section of the cargo door was obstructed by the flaps in the full down position. The pilot exited the aircraft through the rear section of the cargo door and was not injured. The aircraft was substantially damaged (Figure 1).

VH-YOT



Source: Aircraft operator

Figure 1: Accident site



Source: Western Australia Police Force

Pilot comment

The pilot reported that there was nothing abnormal prior to noticing the engine oil pressure was indicating zero and all other engine gauge indicators were in the normal range.

Prior to take-off, the pilot conducted a ‘captain’s brief’ covering actions to be taken in the event of an engine failure after take-off.

Engine examination¹

A subsequent examination of the engine found that there were two holes in the engine crankcase halves (Figure 2). An internal inspection revealed that the number four cylinder connecting rod had failed. The engine had been overhauled by the manufacturer and the engine had failed at about 1016 hours since overhaul. It was also found that there was no major maintenance conducted on the engine or any history of operational issues.

¹ The examination was not conducted by the ATSB.

Figure 2: Damaged engine



Source: Aircraft operator

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Aircraft operator

As a result of this occurrence, the aircraft operator has advised the ATSB that they are taking the following safety actions:

A reminder to all company pilots how extremely important, as was shown in this accident, it is to perform the below actions and self-briefs before all flights, so as to expect the unexpected which will free up valuable decision making time in the event of an emergency at the most critical phases of flight and/or low level flight:

- pre-flight self-brief covering the different emergency scenarios for that particular aerodrome.
- conducting a thorough pre-flight and engine ground run as per the pilots operating handbook/aircraft flight manual and standard operating procedures.
- maintaining aircraft control in all abnormal flight conditions.

Safety message

Pilots should consider the effect an in-flight engine failure at low altitude has on the time available to manage that failure and identify a suitable forced landing area. In this instance, the pilot was able to complete some emergency checks that may have prevented a post-impact fire.

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:	17 February 2014 – 0540 WST	
Occurrence category:	Accident	
Primary occurrence type:	Engine failure	
Location:	4 km ENE Newman Airport, Western Australia	
	Latitude: 23° 24.32' S	Longitude: 119° 50.52' E

Aircraft details

Manufacturer and model:	Cessna C206	
Registration:	VH-YOT	
Serial number:	U20605045	
Type of operation:	Charter	
Persons on board:	Crew – 1	Passengers – Nil
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.