



Australian Government

Australian Transport Safety Bureau

Collision with terrain involving a Cessna 210, VH-HGZ

50 km W of Numbulwar aerodrome, Northern Territory, 28 March 2014

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Addendum

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Collision with terrain involving a Cessna 210, VH-HGZ

What happened

On 28 March 2014, the pilot conducted a daily inspection of a Cessna 210 aircraft, registered VH-HGZ (HGZ), at Tindal Airport, Northern Territory. No defects or abnormalities were observed. The pilot added 1 litre of oil as the oil dipstick indicated about 8.5 quarts (8 L).

The company pilots had been advised to plan flights at an altitude that would permit a manifold pressure (MP) setting of about 23 inches Hg, due to the aircraft burning slightly more oil than normal, but within serviceable tolerances.

The pilot then conducted a flight from Tindal to Numbulwar, Northern Territory, at 5,500 ft above mean sea level (AMSL) and reported that all indications and aircraft performance during the flight were normal. The right front and rear seats had been removed for the flight to accommodate the transportation of cargo.

After arriving at Numbulwar, the pilot collected a passenger for the return flight to Tindal. The passenger was seated in the left rear seat and the pilot gave the passenger a safety briefing and ear plugs to reduce the noise. There was 110 L of fuel in the left tank and 130 L in the right tank prior to departure.

At about 1130 Central Standard Time (CST), the aircraft departed Numbulwar on climb to a planned cruising altitude of 4,500 ft AMSL. When about 22 NM west of Numbulwar, the passenger felt a bump and detected smoke emanating from the floor area beside the pilot. The pilot broadcast a 'MAYDAY'¹ on the common traffic advisory frequency (CTAF) advising of an engine failure and that there were no roads in sight on which to conduct a forced landing, only trees. The MAYDAY call was heard by a company pilot in an aircraft on the reciprocal track, who relayed the message to Brisbane Centre air traffic control (ATC).

The pilot of HGZ then asked the passenger to retrieve the fire extinguisher, which the passenger passed to the pilot. The passenger reported that the smoke stopped very quickly. The aircraft descended and the pilot retrieved the portable emergency locator transmitter (ELT) from the front compartment, extended the antenna and activated it. The pilot advised the passenger to brace for landing.

The passenger reported that the aircraft landed heavily, skidded, and collided with two trees prior to coming to rest at an angle, but upright. The pilot confirmed the portable ELT was beeping and threw it out of the right window. The passenger quickly undid her seatbelt and assisted the pilot to exit the aircraft through the open right door, noticing that the right wing was on fire. The passenger and the pilot moved about 10 m from the aircraft, prior to multiple explosions occurring.

The pilot and passenger were rescued about 3 hours later by a helicopter crew. Both sustained serious injuries and the aircraft was destroyed (Figure 1). Due to memory loss incurred as a result of the accident, the pilot had limited recollection of the events.

Accident site



Source: Rescue crew

¹ Mayday is an internationally recognised radio call for urgent assistance.

Figure 1: Accident site and aircraft wreckage



Source: Rescue crew

Aircraft engine and maintenance

The day prior to the accident, the aircraft had been fitted with a replacement alternator with a new exchange drive clutch. At that time, the aircraft total time in service was 4003.3 hours, and it had completed about 30 hours since the last 100-hourly inspection.

The engine had been converted from a turbo-charged engine to a normally aspirated engine and therefore, a complete overhaul would be required following 2,000 hours of service since the change. The engine had about 112.7 hours remaining until the overhaul.

The engineer reported that, although the aircraft had been using oil at a higher rate than previously, the compression testing performed at the last 100-hourly inspection indicated that compression was within tolerances.

The engineer had advised company pilots that, rather than flying at higher altitudes, with higher engine revolutions per minute (RPM) settings and a MP of about 21 inches Hg, it was more desirable to remain at a lower altitude where 23 inches Hg could be achieved.

ATSB comment

From the photographs provided by the operator (Figure 2), the ATSB assessed that a connecting rod appeared to have broken and separated from the crankshaft, resulting in a hole in the crankcase. This precipitated a catastrophic engine failure. The smoke entering the cockpit was likely to have been from burning oil.

Figure 2: Engine damage to VH-HGZ



Source: Operator

General details

Occurrence details

Date and time:	28 March 2014 – 1150 CST	
Occurrence category:	Accident	
Primary occurrence type:	Engine failure or malfunction	
Location:	Numbulwar aerodrome, Northern Territory	
	Latitude: 14° 14.23' S	Longitude: 135° 15.28' E

Aircraft details

Manufacturer and model:	Cessna Aircraft Company 210	
Registration:	VH-HGZ	
Serial number:	21060430	
Type of operation:	Charter – passenger	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – 1 (Serious)	Passengers – 1 (Serious)
Damage:	Destroyed	

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.