Australian Government
Australian Transport Safety Bureau

Engine failure involving a Piper PA-46, VH-TSV

46 km SW Narrabri airport, New South Wales, 12 June 2014

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Addendum

Page	Change	Date

Engine failure involving a Piper PA-46, VH-TSV

What happened

On 12 June 2014, at about 1530 Eastern Standard Time (EST), a Piper PA-46 aircraft, registered VH-TSV, departed Dubbo, New South Wales for a private flight to the Sunshine Coast, Queensland with a pilot and one passenger on board. The planned route was to track via Moree and Toowoomba at 13,500 ft above mean sea level (AMSL). The pilot had operated the aircraft from Sunshine Coast to Lightning Ridge, Brewarrina and Dubbo earlier that day and reported that all engine indications were normal on those flights.

About 1 hour after departing Dubbo, when about 26 NM south of Narrabri, at about 13,500 ft AMSL, the pilot observed the engine manifold pressure gauge indicating 25 inches Hg, when the throttle position selected would normally have produced about 28 inches Hg. The pilot selected the alternate air[1] which did not result in any increase in power. He then elected to descend to 10,000 ft, and at that power setting when normally the engine would have produced about 29 inches Hg, the gauge still indicated only about 25 inches Hg. He turned the aircraft towards Narrabri in an attempt to fly clear of the Pilliga State Forest.

The pilot assessed that the aircraft had a partial engine failure and performed troubleshooting checks. As the aircraft descended through about 8,000 ft, he observed the oil pressure gauge indicating decreasing pressure. When passing about 6,500 ft, the oil pressure gauge indicated zero and the pilot heard two loud bangs and observed the cowling lift momentarily from above the engine. The passenger observed a puff of smoke emanating from the engine and momentarily a small amount of smoke in the cockpit.

The pilot established the aircraft in a glide at about 90 kt, secured the engine and completed the emergency checklist. He broadcast a 'Mayday'[2] call on Brisbane Centre radio frequency advising of an engine failure and forced landing.

The pilot looked for a clear area below in which to conduct a forced landing and also requested the passenger to assist in identifying any cleared areas suitable to land. Both only identified heavily treed areas. The pilot extended the landing gear and selected 10º of flap and, when at about 1,000 ft, the pilot shut the fuel off, deployed the emergency beacon then switched off the electrical system.

As the aircraft entered the tree tops, he flared to stall[3] the aircraft. On impact, the pilot was seriously injured and lost consciousness. The passenger reported the wings impacted with trees and the aircraft slid about 10 m before coming to rest. The passenger checked for any evidence of fuel leak or fire and administered basic first aid to the pilot.

The aircraft sustained substantial damage (Figure 1).

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1 In the ALTERNATE position, the induction air bypasses the induction system filter and is to be selected if induction system icing is suspected.

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

3 Term used when a wing is no longer producing enough lift to support an aircraft's weight.

Figure 1: Damage to VH-TSV

Source: Insurance assessor

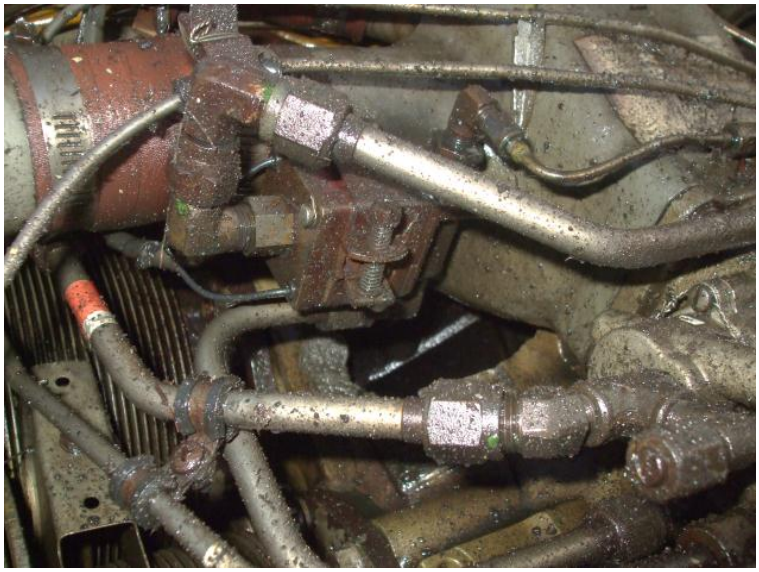
Pilot comments

The pilot reported that the manifold pressure had dropped to 24 inches Hg previously when it was cold, however had increased when the aircraft descended to about 10,000 ft. On this day at 13,500 ft, the outside air temperature was about 3 °C and as the aircraft descended to 10, 000 ft, the manifold pressure did not increase as he had anticipated it would.

Engineering inspection

A preliminary post-accident inspection of the engine found a hole in the right side of the crankcase, indicating an internal mechanical failure (Figure 2).

Figure 2: Hole in upper crankcase



Source: Insurance assessor

General details

Occurrence details

Date and time:	12 June 2014 – 1630 EST	
Occurrence category:	Accident	
Primary occurrence type:	Engine failure or malfunction	
Location:	46 km SW Narrabri airport, New South Wales	
	Latitude: 30° 33.17' S	Longitude: 149° 25.65' E

Aircraft details

Manufacturer and model:	Piper Aircraft Corporation PA-46	
Registration:	VH-TSV	
Serial number:	46-8408022	
Type of operation:	Private	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – Serious	Passengers – Minor
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.