

Australian Government Australian Transport Safety Bureau

Collision on the ground involving a Piper PA-28, VH-TXH and a Cessna 172, VH-EUU

Moorabbin Airport, Victoria, 11 April 2015

ATSB Transport Safety Report Aviation Occurrence Investigation AO-2015-036 Final – 10 June 2015 Released in accordance with section 25 of the Transport Safety Investigation Act 2003

Publishing information

Published by:	Australian Transport Safety Bureau	
Postal address:	PO Box 967, Civic Square ACT 2608	
Office:	62 Northbourne Avenue Canberra, Australian Capital Territory 2601	
Telephone:	1800 020 616, from overseas +61 2 6257 4150 (24 hours)	
	Accident and incident notification: 1800 011 034 (24 hours)	
Facsimile:	02 6247 3117, from overseas +61 2 6247 3117	
Email:	atsbinfo@atsb.gov.au	
Internet:	www.atsb.gov.au	

© Commonwealth of Australia 2015

Ownership of intellectual property rights in this publication

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia.

Creative Commons licence

With the exception of the Coat of Arms, ATSB logo, and photos and graphics in which a third party holds copyright, this publication is licensed under a Creative Commons Attribution 3.0 Australia licence.

Creative Commons Attribution 3.0 Australia Licence is a standard form license agreement that allows you to copy, distribute, transmit and adapt this publication provided that you attribute the work.

The ATSB's preference is that you attribute this publication (and any material sourced from it) using the following wording: *Source:* Australian Transport Safety Bureau

Copyright in material obtained from other agencies, private individuals or organisations, belongs to those agencies, individuals or organisations. Where you want to use their material you will need to contact them directly.

Addendum

Page	Change	Date

Collision on the ground involving a Piper PA-28, VH-TXH and a Cessna 172, VH-EUU

What happened

On 11 April 2015, the student pilot of a Piper PA-28 aircraft, registered VH-TXH (TXH), prepared to conduct a solo, local flight, from Moorabbin Airport, Victoria. The flight was to be the pilot's second solo to the training area, where he was to practice simulated forced landings. The pilot inspected the aircraft, including checking the oil quantity and colour. He noted that the dipstick indicated 5.5 L of oil and the oil appeared to be of a golden colour. After completing the pre-flight checks, the pilot of TXH taxied the aircraft to the run-up bay and performed engine run-ups. He noted that all indications were normal and within the required performance limits.

At 11:29:06 Eastern Standard Time (EST), the pilot made a radio call to the Moorabbin surface movement controller (SMC) on the Ground frequency, advising that he was conducting a solo flight to the training area and requested a departure from runway 35 Right (35R). The SMC cleared TXH to taxi via taxiway A for a departure from runway 35R. TXH then taxied to the holding point for runway 35R, and, at 11:36:37, the pilot of TXH contacted the aerodrome controller – east (ADC1) on the Tower East frequency. He reported ready for take-off, and ADC1 cleared TXH for take-off.

At 11:37:08, the pilot of a Cessna 172 aircraft, registered VH-EUU (EUU), contacted the SMC and requested a clearance to taxi for a local private flight, with three passengers on board. The SMC cleared EUU to taxi to runway 35R via taxiway A, and the pilot commenced taxiing.

The pilot of TXH reported that the take-off run was normal, with the engine indications in the normal range. After rotation, when about 150 ft above ground level (AGL), the engine began to run roughly. The pilot lowered the aircraft nose slightly and within 2-3 seconds, the engine regained full power and the aircraft continued to climb. When approaching 500 ft AGL, the engine again ran roughly and partially lost power. The pilot suspected a fuel issue to be the cause of the rough running, and, as the fuel pump was still on, changed the selected fuel tank. The engine returned to producing full power and the pilot initiated a right climbing turn, leaving the fuel pump switched on. As the aircraft climbed, the engine lost power again.

At 11:37:58, the pilot advised ADC1 that he had a 'spluttering engine' and requested a return to land. ADC1 had observed TXH in the initial climb and noted that it did not appear to be climbing out normally and was then quite low, at an estimated 300 ft AGL. ADC1 initially responded that TXH was number one for runway 35R and then offered runways 22 or 31 if required. The pilot responded that he would use runway 22 (Figure 1).

ADC1 gave TXH priority to land over all other aircraft, advised the SMC of an aircraft with engine trouble, requested runway 22, and coordinated with the SMC for release of runway 22 (see section: *Air traffic control*). The SMC checked the crossing taxiways, helicopter traffic and for any works in progress that may have conflicted with the use of runway 22, then handed ADC1 the green runway strip for runway 22. ADC1 then placed the strip in the runway bay on the console. ADC1 also coordinated with the aerodrome controller – west (ADC2), who instructed a couple of aircraft in the circuit for runway 35 Left (35L) to go-around to ensure they remained clear of the crossing runway. ADC1 instructed the pilots of two aircraft that were in the circuit for runway 35R to go-around and another to conduct a full stop landing. The SMC reported then focusing on checking the runways and taxiways crossing runway 22. Taxiway A did not cross runway 22, and as the SMC remained seated, was unable to see EUU on taxiway A as it was obstructed by the tower console.



Figure 1: Moorabbin Airport, aircraft tracks and collision point

Source: Google earth annotated by the ATSB

At 11:39:06, ADC1 cleared TXH to land on runway 22. The pilot of TXH conducted a tight right turn towards runway 22 and as he was concerned about clearing the buildings on the approach to runway 22, he did not select any flap. After passing over the buildings, the pilot reduced the power to idle. He reported that the aircraft touched down about one third of the way along runway 22. ADC1 observed that TXH appeared to land about half way along the runway and did not decelerate normally after touching down. The SMC observed that TXH appeared very low on final approach to runway 22 and crossed the threshold travelling very fast. The ADC1 stated to the SMC and ADC2 controllers 'he's landed long' and 'gee he's quick'.

The pilot of TXH assessed that he was not going to be able to stop the aircraft prior to the end of the sealed runway, but that there was a suitable grassed overshoot area beyond it, and maintained the aircraft on the runway centreline. ADC2 was standing up, and sighted EUU on taxiway A. ADC2 alerted the SMC to the Cessna (EUU) on taxiway A. ADC1 observed that EUU was then still north of the extended centreline of runway 22 on taxiway A.

As TXH approached the end of runway 22, the pilot of TXH sighted EUU taxiing on taxiway A to his right, and was unsure whether it was going to stop or not. He veered TXH to the right in an attempt to pass behind EUU and avoid a collision. At 11:39:25, the SMC directed EUU to 'hold position, STOP, STOP'. The pilot of EUU braked immediately and as his body moved forward in response to the aircraft braking, he sighted TXH in his left peripheral vision. The pilot of TXH saw EUU brake suddenly.

The pilot of EUU assessed that if he stopped there, TXH would collide squarely with EUU, so he released the brakes and progressed forwards. The left wing of TXH then struck the tail of EUU and spun EEU around through about 180°. TXH continued veering to the right for about 20 m further before coming to rest on a grassed area (Figure 2).

Figure 2: Accident site



Source: Airport Operator

The pilot of TXH observed fuel spilling from the ruptured fuel tank and immediately exited the aircraft and reported that he was not injured. The pilot of EUU reported that he momentarily lost consciousness at the time of the collision, but came to within seconds. He then observed fuel leaking, and although feeling disoriented, he conducted a normal aircraft shut down, including switching off the aircraft electrics and fuel. He and the passengers disembarked and were treated for minor injuries. Both aircraft sustained substantial damage (Figures 3 and 4).



Figure 3: Damage to VH-TXH

Source: Airport operator

Figure 4: Damage to VH-EUU



Source: Airport Operator

Pilot comments

The pilot of TXH provided the following comments:

- He did not declare an emergency as he assessed that he would be able to land the aircraft safely. He remained calm and focused on his approach to, and landing on, runway 22.
- He wanted to ensure that if the engine failed completely he would have sufficient height to clear the buildings in the approach path of runway 22.
- He did not have sufficient altitude to continue a circuit and land on 35R.
- He was unable to stop the aircraft before the end of runway 22, but if there had not been an aircraft on the taxiway, he would have been able to stop safely in the overshoot area.

The pilot of EUU commented that as he was on Ground frequency and the pilot of TXH was on Tower frequency, he was not aware of TXH until he sighted it immediately prior to the collision. He reported that if he had been directed to stop earlier, it may have averted the collision.

Controller comments

The ADC1 controller provided the following comments:

- The ADC1 offered the pilot of TXH the choice of runways to land on, but did not know what was achievable for the pilot or aircraft.
- The ADC1 and ADC2 controllers both stood up when the pilot of TXH reported engine trouble.
- The incident was a good example of how quickly things happen; about 90 seconds after an aircraft took off it was back on the ground and at least two aircraft had to be sent around in the interim.

The SMC reported checking the works strip under the runway designators in the console. The SMC scanned the eastern helicopter area, checked the taxiways that crossed runway 22 – 'F', 'B' and 'C' for any aircraft waiting to taxi, and did not see anything that may pose a risk to an aircraft landing on runway 22. Taxiway A was not a crossing taxiway for runway 22. The SMC reported

that these scans were performed multiple times after the pilot of TXH advised of engine trouble. The SMC further commented that if TXH had maintained the runway centreline, the aircraft would not have collided.

Moorabbin Airport and weather conditions

Runway 22 at Moorabbin was 571 m in length, runway 35R was 1335 m. The wind was from 030° at about 7 kt, resulting in a tailwind on runway 22.

Air traffic control (ATC)

There were three ATC positions active at the time; a combined surface movement controller / coordinator position (SMC), an aerodrome controller – east (ADC1), and an aerodrome controller – west (ADC2). The three controllers were seated in the tower in that order from north to south facing towards the east, and were the only people in the control tower at the time. Runways 35L and 35R were the runways in use prior to the pilot of TXH reporting engine trouble. A runway in use is a runway under the control of an aerodrome controller. All runways are considered 'active' and a clearance is required to cross or enter any runway. The runways other than those in use, were held by the SMC. The ADC1 therefore required the release of runway 22 from the SMC prior to clearing TXH to land. The controller places the runway strips of the runways for which they hold responsibility, in the runway bay of the console.

Engineering inspection

A post-accident inspection of the engine of TXH found a small quantity of oil on the cylinders and some fouling of the spark plugs which may have led to the rough running.

Safety message

The ATSB publication Avoidable Accidents No. 3 – Managing partial power loss after takeoff in single-engine aircraft, found causes of partial power loss after take-off include fuel starvation, spark plug fouling, carburettor icing and pre-ignition conditions. A pre-flight safety brief that considers actions to take following a partial power loss after take-off, gives pilots a much better chance of maintaining control of the aircraft and of responding immediately. Such actions include landing immediately within the aerodrome, landing beyond the aerodrome, and conducting a turn back towards the aerodrome.

A copy of the report is available on the ATSB website here:

www.atsb.gov.au/publications/2010/avoidable-3-ar-2010-055.aspx

General details

Occurrence details

Date and time:	11 April 2015 – 1140 EST		
Occurrence category:	Accident		
Primary occurrence type:	Collision		
Location:	Moorabbin Airport, Victoria		
	Latitude: 37° 58.55' S	Longitude: 145° 06.13' E	

Aircraft details: VH-TXH

Manufacturer and model:	Piper Aircraft Corporation PA-28		
Registration:	VH-TXH		
Serial number:	2842325		
Type of operation:	Flying training – solo		
Persons on board:	Crew – 1	Passengers – Nil	
Injuries:	Crew – Nil	Passengers – Nil	
Damage:	Substantial		

Aircraft details: VH-EUU

Manufacturer and model:	Cessna Aircraft Company 172S		
Registration:	VH-EUU		
Serial number:	172S10266		
Type of operation:	Private – pleasure/travel		
Persons on board:	Crew – 1	Passengers – 3	
Injuries:	Crew – 1 (Minor)	Passengers – 3 (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.