Australian Government
Australian Transport Safety Bureau

Collision with terrain involving Cessna A150M, VH-CYO

5 km west-south-west of Peachester, Queensland, on 23 June 2021

ATSB Transport Safety Report
Aviation Occurrence Investigation (Short)
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Addendum

Page	Change	Date

Preliminary report

This preliminary report details factual information established in the investigation's early evidence collection phase, and has been prepared to provide timely information to the industry and public. Preliminary reports contain no analysis or findings, which will be detailed in the investigation's final report. The information contained in this preliminary report is released in accordance with section 25 of the *Transport Safety Investigation Act 2003*.

The occurrence

Two private pilots contracted an aerobatics instructor to provide aerobatic flight training. On the morning of 23 June 2021, the three pilots gathered at the Sunshine Coast Airport, Queensland, for a pre-flight briefing. The briefing contained theoretical information about spin[1] training and recovery techniques, which were intended for the practical component of the aerobatic flights that day. The pilots had hired a Cessna A150M Aerobat, registered VH-CYO, from the Sunshine Coast Aero Club for the practical flight training.

At 1103 Eastern Standard Time,[2] VH-CYO took off from the Sunshine Coast Airport, with the instructor and one of the student aerobatic pilots on board. The flight was being conducted under visual flight rules (VFR), and visual meteorological conditions existed during the flight.

The aircraft departed to the south-west and climbed to about 6,000 ft above mean sea level (AMSL) (Figure 1). It arrived at the area intended to conduct aerobatics about 20 minutes after departure.

Figure 1: VH-CYO flight track radar data showing take-off point and accident site

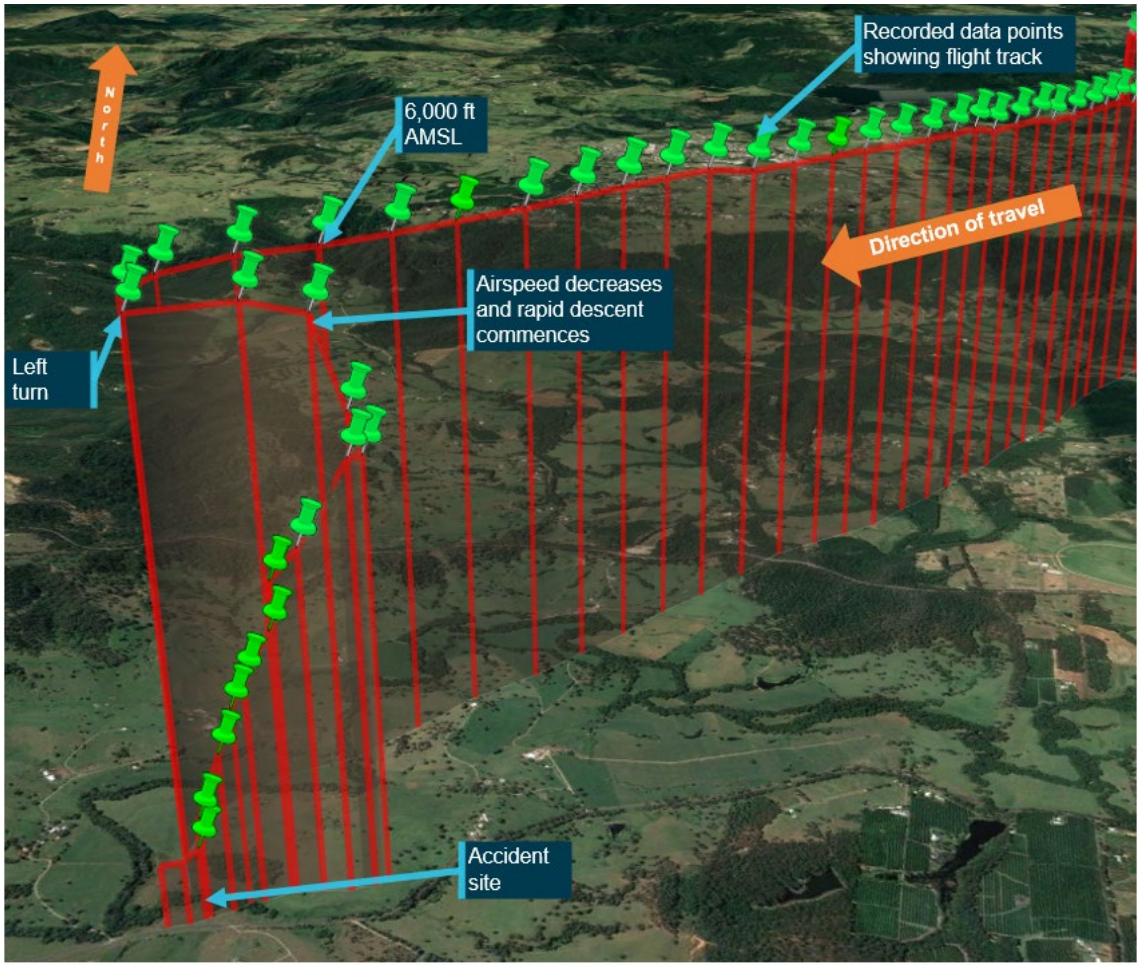
Source: Google Earth, annotated by the ATSB

[1] A spin is a sustained spiral descent of a fixed-wing aircraft, with the wing's angle of attack beyond the stall angle.

[2] Eastern Standard Time (EST) was Coordinated Universal Time (UTC) + 10 hours.

Figure 2 shows recorded radar data for the last 3 minutes of the flight. It indicates that, within the last 90 seconds, the aircraft turned left, decelerated while maintaining altitude, and then descended rapidly. Shortly after, at about 1122, the aircraft impacted terrain. The aircraft was destroyed and the two occupants were fatally injured.

Figure 2: VH-CYO last 3 minutes of recorded flight data viewed from the left and above



Radar positions (depicted by green pins) were recorded every 5 seconds. The last two points depicted without pins were predictive in nature and were not considered to be accurate.
Source: Google Earth, annotated by the ATSB

The aircraft was reported missing by a member of the aero club at about 1515 EST. A subsequent search found the wreckage in bushland near Peachester several hours later.

Context

Aircraft information

The Cessna 150 is a high wing, two-seat, single piston engine aeroplane designed for flight training. The Cessna A150M Aerobat model was designed to conduct aerobatic training.

VH-CYO was manufactured in 1976 and first registered in Australia in 1995. It had been owned by the Sunshine Coast Aero Club since March 2021.

Recorded information

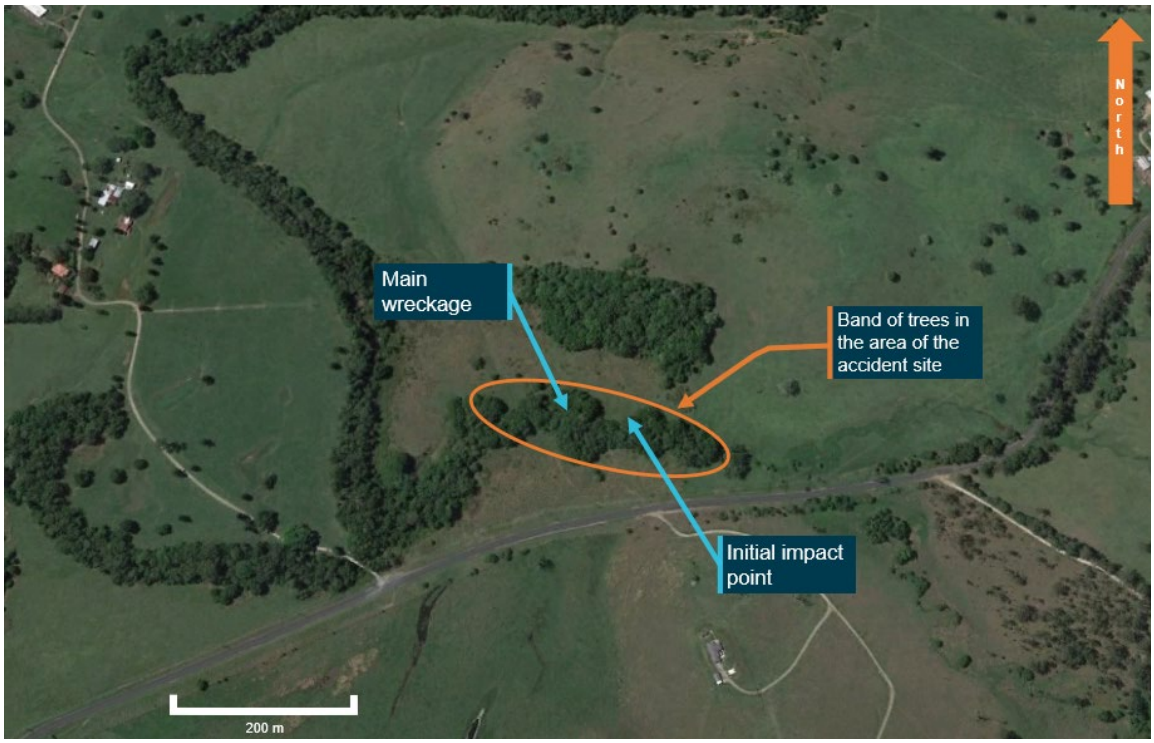
The aircraft flight path was derived from primary[3] and secondary[4] surveillance radar data recorded by Airservices Australia. The data included the aircraft's position with a time stamp and altitude at 5-second intervals. A groundspeed can be derived by calculating the distance travelled over a known time period.

Each of the green pins in Figure 2 depicts a recorded radar position. The recording stopped at about 1,200 ft AMSL, most likely due to the aircraft descending below radar coverage.

Site and wreckage examination

The accident site was located in a dense stand of trees, about 400 ft AMSL. The trees stood about 15–20 m high and straddled a creek line in a band about 50 m wide, with open areas of farmland on either side (Figure 3).

Figure 3: Area of accident site



Source: Google Earth, annotated by the ATSB

The wreckage trail extended about 50 m from the initial tree impact point, until the final piece of wreckage, oriented in an east-west direction. There were several notable tree impact points, including trees that had been broken in half or completely felled by the impact forces.

Calculations of the tree impact damage heights indicated the final flight path angle was a descent of about 13°. The main wreckage came to rest at the base of a tree that was struck at a height of about 10 m.

The aircraft structure was significantly disrupted as a result of impacting several trees (Figure 4).

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[3] Primary radar returns are produced by radar transmissions that are passively reflected from an aircraft and received by the radar antenna. The received signal is relatively weak and provides only position information, not the aircraft's altitude.

[4] Secondary radar returns are dependent on a transponder in the aircraft replying to an interrogation from a ground station. An aircraft with its transponder operating is more easily and reliably detected by radar and, depending on the mode selected by the pilot, the aircraft's pressure altitude is also displayed to the air traffic controller.

Figure 4: Aircraft main wreckage at the base of a large tree that was struck

Source: ATSB

The ATSB conducted an examination of the aircraft wreckage. This examination identified that:

- the disruption to the aircraft and foliage, coupled with the length of the wreckage trail, indicated that the aircraft had significant forward speed at impact
- the flaps were in the retracted position
- the aircraft had no evident pre-impact defects with the flight controls or aircraft structure
- the aircraft was intact prior to impact with terrain
- the engine had no obvious defects upon external examination
- the throttle setting was captured at an idle position during the accident sequence
- the propeller rotational damage signatures were minimal, indicating a low power setting.

Ongoing investigation

The investigation is continuing and will include:

- interviews with parties involved with the operation of the aircraft
- further analysis of the radar data
- examination of the pilots' qualifications, experience, and medical/recent history
- assessment of the aircraft's flight performance characteristics
- assessment of spin training requirements and practices
- examination of aircraft maintenance and operational records

- processes surrounding the use of flight notes or a nominated SARTIME[5] to highlight expected arrival/return times so that aircraft are identified as overdue in a timely manner.

Should a critical safety issue be identified during the course of the investigation, the ATSB will immediately notify relevant parties so appropriate and timely safety action can be taken.

A final report will be released at the conclusion of the investigation.

[5] A SARTIME is the time nominated by a pilot for the initiation of Search and Rescue (SAR) action. SARTIMEs are provided to air traffic services. A flight note is details of the route and timing of a proposed flight left with a person who could be expected to notify appropriate authorities in the event the flight becomes overdue. VFR flights were not formally required to nominate a SARTIME or flight note unless they involved air transport activities, were in a designated remote area or were at night and proceeded more than 120 NM from the departure aerodrome.

General details

Occurrence details

Date and time:	23 June 2021 – 1122 EST	
Occurrence category:	Accident	
Primary occurrence type:	Collision with terrain	
Location:	5 km WSW of Peachester, Queensland	
	Latitude: 26° 51.287' S	Longitude: 152° 50.108' E

Aircraft details

Manufacturer and model:	Cessna Aircraft Company A150M	
Registration:	VH-CYO	
Operator:	Sunshine Coast Aero Club Pty. Ltd.	
Serial number:	A1500655	
Type of operation:	Flying training	
Activity:	Instructional flying - dual	
Departure:	Sunshine Coast Airport	
Destination:	Sunshine Coast Airport	
Persons on board:	Crew – 2	Passengers – 0
Injuries:	Crew – 2 (fatal)	Passengers – 0
Aircraft damage:	Destroyed	