

Australian Government Australian Transport Safety Bureau

Mid-air collision involving Jabiru J430, VH-EDJ, and Piper PA-25-235, VH-SPA

Caboolture Airfield, Queensland, on 28 July 2023

ATSB Transport Safety Report

Aviation Occurrence Investigation AO-2023-036 Preliminary – 8 September 2023 Released in accordance with section 25 of the Transport Safety Investigation Act 2003

Publishing information

Published by:	Australian Transport Safety Bureau
Postal address:	GPO Box 321, Canberra, ACT 2601
Office:	12 Moore Street, Canberra, ACT 2601
Telephone:	1800 020 616, from overseas +61 2 6257 2463
	Accident and incident notification: 1800 011 034 (24 hours)
Email:	atsbinfo@atsb.gov.au
Website:	www.atsb.gov.au

© Commonwealth of Australia 2023



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 licence 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

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

On the morning of 28 July 2023, the pilot of a Piper PA-25, registered VH-SPA and operated by Caboolture Gliding Club, took off from runway 06¹ at Caboolture Airfield, Queensland, with a glider in tow. It was a clear day with light winds. This was the pilot's second flight of the day, having previously completed one prior glider aerotow in VH-SPA. After the glider was released, the pilot of VH-SPA entered the circuit for runway 06, with the intention of landing so that the aircraft could be used to tow a third glider into the air.

Caboolture Airfield was located within class G (non-controlled) airspace, and had a designated common traffic advisory frequency (CTAF) on which pilots made positional broadcasts when operating within the vicinity of the airport. To date no recordings of radio transmissions from any aircraft on the ground at Caboolture around the time of the accident have been identified (see *Recorded data*). Witness recollections of radio transmissions are being collated and analysed by the ATSB.

Some transmissions from aircraft in flight were recorded. While in the circuit, the pilot of VH-SPA made several radio calls on the CTAF, the last of which was at about 1030:19 and was partially recorded. According to several witnesses who heard the transmission, the pilot announced that VH-SPA was commencing a final approach to runway 06 and stated that the aircraft would be 'holding short', indicating that it would not be crossing the intersection with runway 11/29.

At about 1030:44, while VH-SPA was on final approach, the pilot of a Jabiru J430, registered VH-EDJ, began take-off on runway 11. The pilot and passenger were conducting a private flight to Dirranbandi Airport, Queensland.

Also at that time, a Cessna 172, registered VH-EVR, was being taxied at the airfield by a solo student pilot. The pilot of VH-EVR later reported having turned the radio volume down to conduct engine run-ups near the intersection of the two runways and had not restored normal volume upon completion. As a result, the pilot of VH-EVR did not hear any transmissions from the pilot of VH-SPA, and was not aware of the aircraft approaching runway 06.

At 1030:49, just prior to VH-SPA touching down on runway 06, VH-EVR crossed runway 06 ahead of VH-SPA in a north-west direction. The pilot of VH-SPA initiated a go-around, and made an associated radio call (according to several witnesses) which was not recorded.

At 1030:55, VH-SPA began climbing while maintaining a runway 06 heading as VH-EDJ lifted off runway 11 before the runway intersection. About 5–10 seconds later, while the aircraft were climbing on crossing tracks, the pilot of VH-EDJ commenced a left turn, likely in an attempt to avoid a collision.

At 1031:11, the two aircraft collided on similar tracks above runway 06, just north-east of the 06/11 intersection, at a height of about 200–300 feet (Figure 1).

¹ Runway numbers represent the magnetic heading closest to the runway orientation (e.g. runway 11 is oriented 114° magnetic).



Figure 1: Approximate tracks of VH-EDJ and VH-SPA based on video footage

Source: Google Earth, annotated by the ATSB

The leading edge of the inboard left wing of VH-SPA struck VH-EDJ's right wing at the outboard trailing edge, resulting in separation of the right wing tip and part of the right aileron. VH-EDJ rolled to the right while rapidly losing altitude. VH-EDJ collided with terrain in a nose-down, right-wing-down attitude near the end of runway 06. The pilot and passenger were fatally injured.

VH-SPA sustained damage to its left wing in the collision but remained flyable and the pilot was uninjured. The pilot circled the airfield to direct people towards the accident site. The aircraft landed on runway 11 without further incident.

Context

Pilot information

Both pilots involved in the collision were experienced fixed-wing pilots. They were both qualified for their respective roles, and both held valid class 2 aviation medical certificates.

The pilot of VH-EDJ held an Air Transport Pilot Licence (aeroplane) and was a grade 2 flight instructor with various instrument ratings.

The pilot of VH-SPA held a Private Pilot Licence (aeroplane) and held endorsements for glider operations and glider towing operations. The pilot was also an accredited flight instructor/examiner for both gliders and tow aircraft.

The pilot of VH-EVR was a student pilot conducting flying training at Caboolture. The pilot had completed 2 solo navigation flights and was preparing to conduct a third flight at the time of the occurrence.

Aircraft information

VH-EDJ

The Jabiru J430 is an amateur-built high-wing light aircraft. It has a single Jabiru 3300 reciprocating engine and a ground-adjustable fiberglass propeller. VH-EDJ was constructed primarily by the pilot in Australia in 2019, and first registered on 19 February 2019, with 283.7 hours total time in service.

VH-SPA

The Piper PA-25-235 Pawnee B is a low-wing single-engine aircraft. It is powered by a Textron Lycoming O-540 reciprocating engine, with a fixed-pitch aluminium propeller. VH-SPA was manufactured in 1969, and first registered in Australia on 23 August, 1974. It had 10,181 hours total time in service, and had been operating as a tow aircraft at Caboolture airfield since January 1997.

Wreckage and impact information

The ATSB conducted an on-site examination of the aircraft wreckage. The right wing of VH-EDJ collided with the ground forward of the threshold marking for runway 24. The nose then struck the ground, and the aircraft tumbled to a stop 45 metres from the initial impact point (Figure 2).



Figure 2: Wreckage and impact point of VH-EDJ

Source: ATSB

VH-EDJ came to rest right-side down, and was later disturbed by first responders attempting to reach the pilot and passenger. First responders reported both the pilot and passenger were wearing seatbelts. The right wing tip and a section of the right aileron was recovered near the intersection of runway 11/06, near the point at which the two aircraft collided.

VH-SPA sustained impact damage to the leading edge of its left wing as a result of the collision (Figure 3).



Figure 3: Damage to VH-SPA following the collision with VH-EDJ

Source: ATSB

Airfield information and procedures

Caboolture Airfield was an aircraft landing area,² located about 3.5 km east of Caboolture, Queensland. It had an elevation of 40 ft above mean sea level, and two intersecting runways with magnetic orientations of 114°/294° (runway 11/29), and 065°/245° (runway 06/24). Their lengths were 1,129 m and 820 m respectively. Both runways were unsealed grass, except for a sealed portion at the beginning of runway 11. Trees about 10–14 m high between the intersecting runways obscured parts of adjacent runways (Figure 4).

² An aircraft landing area is an airfield that has not been certified by CASA. These airfields are non-controlled, unregulated facilities. It is the responsibility of pilots and operators to determine whether these airfields are suitable for use.



Figure 4: Obscured parts of the adjacent runway from the thresholds of runways 11 (orange) and 06 (yellow)

Source: Google Earth, annotated by the ATSB

The carriage and use of a radio was required by the aerodrome operator for all aircraft operating at Caboolture Airfield. As a non-controlled aerodrome, separation was maintained by 'alerted seeand-avoid' principles guided by Civil Aviation Safety Authority (CASA) advisory circulars AC 91-10 *Operations in the vicinity of non-controlled aerodromes* and AC 91-14 *Pilots' responsibility for collision avoidance*. These stated that pilots should broadcast position and intention so that nearby traffic would have an awareness of the aircraft and be able to plan accordingly.

Recorded data

VH-SPA carried no flight data recording devices, and no automatic dependent surveillance broadcast (ADS-B) transponder. An ADS-B transmitter was fitted to VH-EDJ but no data on the accident flight was available. Two data recording devices were recovered from VH-EDJ for later examination.

Video footage of the accident was recovered from a closed-circuit television system installed at Caboolture Airfield.

Common traffic advisory frequency (CTAF) broadcasts were not recorded at the airfield. Caloundra Airport, 32 km north-north-east of Caboolture, operated on the same CTAF frequency and recorded all transmissions received there. Due to distance and line-of-sight limitations, radio calls on or near the ground at Caboolture were generally not received, but some calls from within the Caboolture Airfield circuit were received and recorded. Recordings of radio calls made by the pilot of VH-SPA indicated that the aircraft's radio was functional for transmitting and receiving.

Further investigation

To date, the ATSB has:

- examined both aircraft and the accident site
- recovered aircraft components, including the radio from VH-EDJ (which was damaged in the accident), and other items for further examination

- interviewed relevant parties, including eyewitnesses and witnesses with access to common traffic advisory frequency (CTAF) transmissions
- collected aircraft, pilot, aerodrome and operator documentation
- analysed video recordings and CTAF transmissions.

The investigation is continuing and will include:

- · examination of aircraft components and other items recovered from the accident site
- further review of aircraft, pilot, aerodrome and operator documentation
- further analysis of video recordings and CTAF transmissions
- analysis of aircraft flight paths, with particular attention given to potential visibility restrictions
- a review of similar occurrences
- analysis of procedures at non-controlled aerodromes with intersecting runways
- interviews with other pilots familiar with Caboolture Airfield.

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.

General details

Occurrence details

Date and time:	28 July 2023 – 1031 EST	
Occurrence class:	Accident	
Occurrence categories:	Runway incursion, Collision	
Location:	Caboolture Airfield, Queensland	
	Latitude: 27° 4.535' S	Longitude: 152° 59.323' E

Aircraft 1 details

Manufacturer and model:	Amateur built aircraft Jabiru J430	
Registration:	VH-EDJ	
Serial number:	827	
Type of operation:	Part 91 General operating and flight rules-Other	
Activity:	General aviation / Recreational-Sport and pleasure flying-Pleasure and personal transport	
Departure:	Caboolture ALA	
Destination:	Dirranbandi Airport	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – 1 fatal	Passengers – 1 fatal
Aircraft damage:	Destroyed	

Aircraft 2 details

Manufacturer and model:	Piper Aircraft Corporation PA-25-235		
Registration:	VH-SPA		
Operator:	Caboolture Gliding Club		
Serial number:	25-5008		
Type of operation:	Part 91 General operating and flight rules-Other		
Activity:	General aviation / Recreational-Sport and pleasure flying-Glider towing		
Departure:	Caboolture ALA		
Destination:	Caboolture ALA		
Persons on board:	Crew – 1	Passengers – 0	
Injuries:	Crew – 0	Passengers – 0	
Aircraft damage:	Substantial		

Aircraft 3 details

Manufacturer and model:	Cessna Aircraft Company 172R	
Registration:	VH-EVR	
Operator:	Airwork Aviation	
Serial number:	17280252	
Type of operation:	Flying Training-Training Solo - (Flying Training)	
Activity:	General aviation / Recreational-Instructional flying-Instructional flying - solo	

Departure:	Caboolture ALA	
Destination:	Caboolture ALA	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Nil	

Australian Transport Safety Bureau

About the ATSB

The ATSB is an independent Commonwealth Government statutory agency. It is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers.

The ATSB's purpose is to improve the safety of, and public confidence in, aviation, rail and marine transport through:

- · independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis and research
- 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, as well as participating in overseas investigations involving Australian-registered aircraft and ships. It prioritises investigations that have the potential to deliver the greatest public benefit through improvements to transport safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, international agreements.

Purpose of safety investigations

The objective of a safety investigation is to enhance transport safety. This is done through:

- identifying safety issues and facilitating safety action to address those issues
- providing information about occurrences and their associated safety factors to facilitate learning within the transport industry.

It is not a function of the ATSB to apportion blame or provide a means for determining 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. The ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action.

Terminology

An explanation of terminology used in ATSB investigation reports is available on the ATSB website. This includes terms such as occurrence, contributing factor, other factor that increased risk, and safety issue.