Australian Government
Australian Transport Safety Bureau

Loss of control and collision with terrain involving Pilatus PC-6, VH-XAA

2.5 km north of Moruya Airport, New South Wales, on 27 September 2025

ATSB Transport Safety Report
Aviation Occurrence Investigation
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Preliminary – 12 November 2025

Cover photo: Beven Mather

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The Australian Transport Safety Bureau acknowledges the traditional owners of country throughout Australia, and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to elders both past and present.

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 27 September 2025, the pilot and owner of a Pilatus PC-6/B2-H4 aircraft, registered VH-XAA and operated by Jump Aviation for SKYONE Moruya Heads parachuting organisation, was conducting parachute operations over Moruya Airport, New South Wales. After conducting 8 successful parachute drops, at 1348:58 local time, the pilot broadcast on the common traffic advisory frequency (CTAF)[1] that they were taxiing for runway 04[2] to conduct the next flight. On board were 8 parachutists and the pilot. The pilot was wearing the fitted 4-point restraint and an emergency parachute in accordance with company procedures.

At 1351:08, the pilot broadcast that the aircraft was airborne off runway 04, for an upwind departure and on climb to flight levels (FL)[3] for parachute operations. During the climb to the planned drop between FL 140 and 150, several parachutists reported feeling a bump and hearing the stall warning[4] activate momentarily, passing about 10,000 ft.

At 1400:52, the pilot broadcast on the CTAF that they were 4 minutes to a parachute drop, then advised the same to Melbourne Centre air traffic control. Recorded data showed the 'jump run' tracked in a northerly direction about 2 km west of Moruya Airport runway 36, in a gradual descent between FL 150 and 140. The parachutists reported that the jump run was normal, and all the parachutists exited successfully. At 1406:15, the pilot broadcast that the parachutists had exited and the aircraft was on descent.

Several witnesses on the ground observed the aircraft enter a steep nose-down dive, rotating left before pitching[5] up and rolling[6] right. Recorded data showed the aircraft initially descended from FL 140 at about 5,000 fpm, but approaching FL 120, the descent rate increased significantly. The last recorded automatic dependent surveillance-broadcast (ADS-B) data position was at 1407:26 and 7,425 ft, descending at about 15,000 fpm (Figure 1). The aircraft subsequently impacted trees and terrain about 2 km north of Moruya Airport. The pilot sustained fatal injuries, and the aircraft was destroyed.

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1 Common traffic advisory frequency (CTAF): a designated frequency on which pilots make positional broadcasts when operating in the vicinity of a non-controlled aerodrome or within a broadcast area.

2 Moruya Airport had 2 sealed runways, 18/36 and 04/22. The runway number represents its magnetic heading.

3 Flight level: at altitudes above 10,000 ft in Australia, an aircraft's height above mean sea level is referred to as a flight level (FL). FL 140 equates to 14,000 ft.

4 A stall warning system provides the pilot with advance warning of an impending aerodynamic stall.

5 Pitching: the motion of an aircraft about its lateral (wingtip-to-wingtip) axis.

6 Rolling: the movement of an aircraft about its longitudinal axis.

Figure 1: VH-XAA flight track and accident site

Source: Google Earth, annotated by the ATSB

Context

Pilot

The pilot held a private pilot licence (aeroplane) with the last flight review conducted in August 2025, and a class 2 aviation medical certificate, valid until June 2027. The pilot held the appropriate ratings and endorsements for the flight. In addition, the pilot held aerobatics and spin endorsements and jump pilot authorisation. At the time of the accident, they had about 11,690 hours total aeronautical experience. In the previous 90 days, they had flown 135.2 hours, most of which were conducting parachuting operations in Cessna 206 and 208 aircraft.

The pilot's logbook recorded an endorsement for the Pilatus PC-6 (required by the then Civil Aviation Regulations) in 1998. The ATSB was unable to access some of the pilot's logbooks to confirm how many hours they had logged flying the Pilatus PC-6 prior to purchasing VH-XAA from New Zealand (NZ). Between 22 and 24 August 2025, the pilot and an instructor flew the aircraft from Auckland, NZ, to Dubbo, New South Wales, logging 19.5 hours of flight time. The pilot then recorded 2 hours operating the aircraft to

Moruya on 12 September 2025. From 20 to 24 September 2025 inclusive, the pilot recorded 9.7 hours in the aircraft conducting parachute operations. At the start of the accident morning, the pilot had logged 31.2 hours in VH-XAA.

The pilot was an experienced parachutist and had been a member of the Australian Parachute Federation (APF)[7] since 1987. On 30 June 2025, the pilot reported having conducted 17,000 jumps. The pilot held numerous parachuting qualifications including senior instructor and a Certificate F, which was the highest certificate issued by the APF. The pilot was the senior pilot of Jump Aviation and the chief parachute instructor of the parachuting operator SKYONE Moruya Heads – a group member of the APF.

Aircraft

General information

VH-XAA was a Pilatus Aircraft PC-6/B2-H4, short take-off and landing utility aeroplane with fixed landing gear (Figure 2). It was powered by a Pratt & Whitney Canada PT6A-27 turbine engine and a Hartzell Propellers HC-B3TN-3D 3-bladed propeller. The aircraft was not approved for aerobatic manoeuvres including spins.

Figure 2: VH-XAA when operating in New Zealand as ZK-MCK

Source: Richard Currie, modified by the ATSB

It was manufactured in Switzerland in 1980 and issued serial number 809. The aircraft had been used for parachute operations in New Zealand (NZ) since 1982. As such, the passenger seats, copilot seat and copilot control stick had been removed. Additionally, a skydiving step and hand hold had been installed.

A 7,000 hour/14-year ‘complete overhaul’ maintenance activity was performed in NZ and finalised on 14 August 2025. During the maintenance activity, the horizontal stabiliser electric trim actuator was removed and overhauled by the manufacturer in the United States.

[7] The APF is the peak body for the administration and representation of Australian Sport Parachuting.

The aircraft was added to the Australian civil aircraft register on 15 August 2025, and a special flight permit[8] was issued to allow the aircraft to be flown from NZ to Australia. After the pilot ferried the aircraft to Australia, a certificate of airworthiness was issued for VH-XAA on 19 September 2025. At the time of the accident, VH-XAA had accrued 13,594.5 hours total time in service.

Doors

The aircraft had a door on each side of the cockpit for pilot and copilot access, which were fitted with a jettison system. Figure 3 shows the Pilatus PC-6 airplane flight manual[9] (AFM) procedure for emergency opening of the cockpit doors:

Figure 3: Cockpit doors emergency opening checklist

COCKPIT DOORS EMERGENCY OPENING

The following procedure is to be used if a cockpit door needs to be jettisoned.
A red-painted, safety-wired door jettison lever is located on the upper forward door frame.

1.	Cockpit Door Handle	UNLOCK POSITION
2.	Door Jettison Lever	PULL INBOARD and DOWN
3.	Cockpit Door	PUSH OUTWARD

NOTE

Considerable physical force can be required to jettison a door during cruise, or at descent flight speeds. The pilot should consider reducing airspeed and then inducing light side slip to counteract the airflow along the sides of the cockpit.

Source: Pilatus PC-6 airplane flight manual

The aircraft cabin had a sliding door on the right side, which was used for parachutists to exit, and 2 hinged doors on the left side, which were fitted with an emergency jettison system. The sliding door had a mechanism to open it from inside the aircraft, but it could not be locked open. Parachutists reported that, on the day of the accident, the pilot had landed with the sliding door open on some flights and closed on others. Although it was not identified at the accident site, several parachutists reported that there was a fishing gaffer hook on a pole onboard the aircraft that the pilot used to close the sliding door in flight from the pilot's seat.

Key speeds

The AFM included the following key speeds:

- never exceed speed (V_{NE})[10] 151 kt
- manoeuvring speed (V_A)[11] 119 kt

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[8] Special Flight Permit (SFP): issued to allow the operation of an aircraft that does not meet its airworthiness requirements but under certain circumstances, and for a particular intended purpose, the aircraft may still be capable of safe flight.

[9] Airplane flight manual (AFM): a manual that is part of the certification basis of the aircraft, containing the operating limitations within which the aircraft is considered airworthy, and any other information required for the safe operation of the aircraft, including all amendments and supplements for that manual.

[10] Never exceed speed (V_{NE}): the indicated airspeed which, if exceeded, may result in structural damage to the aircraft, normally represented by a red line on the airspeed indicator.

[11] Manoeuvring speed (V_A): the maximum speed at which a pilot can make full or abrupt control movements without causing structural failure of the aircraft.

- maximum speed with the sliding door open 119 kt
- stalling speeds at a gross weight of 2,800 kg, power off and 0° angle of bank including:
  - 58 kt calibrated airspeed[12] (KCAS) with flap retracted
  - 52 KCAS with landing flap extended.

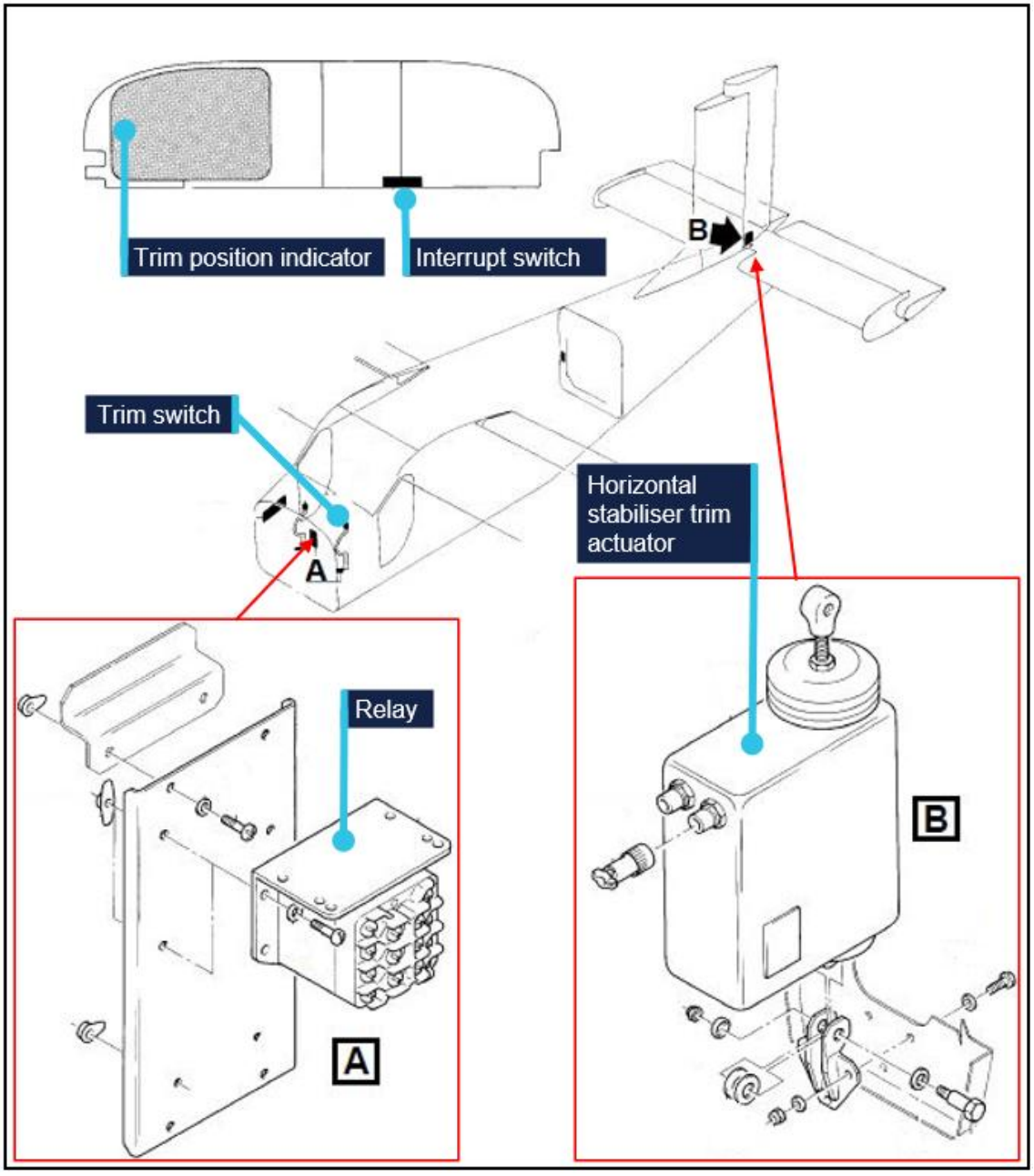
Horizontal stabiliser electric trim system

The aircraft was fitted with a horizontal stabiliser electric trim system, designed to move the entire horizontal stabiliser to adjust the pitch trim of the aircraft and balance the aerodynamic forces to reduce the pilot control forces on the elevator. The system (Figure 4), consisted of:

- a dual motor (main and alternate motors) electrically-operated linear trim actuator
- a 3-position spring-loaded trim switch, located on the control column grip
- a relay located on the firewall
- an interrupt system incorporating a guarded switch on the instrument panel shelf and an alternate trim control system with a 3-position spring-loaded trim switch (Figure 5)
- an electrically-operated trim position indicator on the upper left side of the instrument panel.

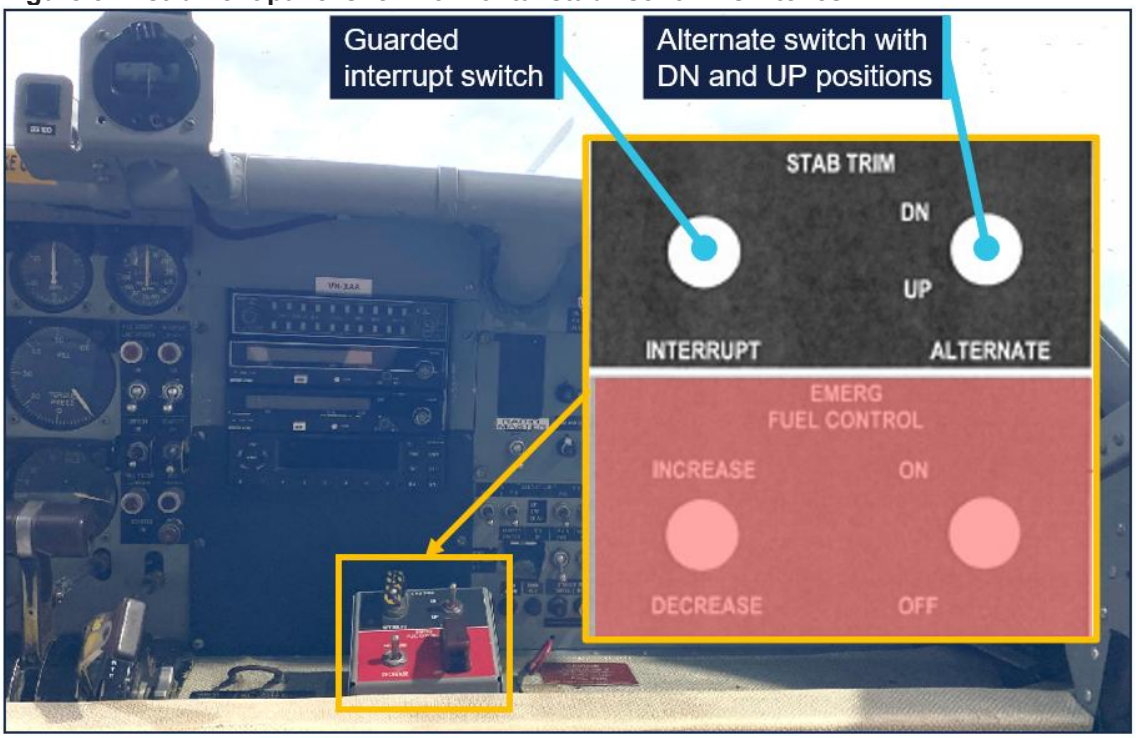
[12] Calibrated airspeed: indicated airspeed corrected for air speed indicator system errors.

Figure 4: Schematic of horizontal stabiliser trim system



Source: Pilatus PC-6 Illustrated Parts Catalogue, modified and annotated by the ATSB

Figure 5: Instrument panel shelf horizontal stabiliser trim switches



Source: Supplied and Pilatus PC-6 AFM, annotated by the ATSB

The AFM included the following procedure (Figure 6) in the event of a trim runaway:[13]

Figure 6: Horizontal stabiliser trim runaway emergency procedure

TRIM RUNAWAY

HORIZONTAL STABILIZER TRIM

1.	Airspeed	REDUCE to obtain acceptable residual control forces

WARNING

MINIMUM SAFE AIRSPEEDS MUST BE OBSERVED.

2.	Trim Interrupt Switch	SELECT 'INTERRUPT' UP
3.	Stab Trim CB's	PULL
4.	Trim Interrupt Switch	SELECT 'INTERRUPT' DOWN

- **IF TRIM DOES NOT MOVE** (IT INDICATES A MAIN SYSTEM TRIM RUNAWAY)

5.	Alternate Stab Trim Nose DN/UP Switch	OPERATE to achieve required trim

NOTE

If a single trim position indicator is installed, the indicator will move to max nose up position if the STAB TRIM CB is pulled.

- **IF TRIM DOES MOVE** (IT INDICATES AN ALTERNATE SYSTEM TRIM RUNAWAY)

6.	Trim Interrupt Switch	SELECT 'INTERRUPT' UP
7.	Stab Trim CB's	PUSH
8.	Main Trim Switch	PRESS and HOLD in opposite direction
9.	Trim Interrupt Switch	SELECT 'INTERRUPT' DOWN

NOTE

Both motors (main and alternate) will operate. As the main motor is faster, it will override the alternate.

As soon as trim is in desired position

10.	Trim Interrupt Switch	SELECT 'INTERRUPT' UP
11.	Land without further trim operation	

Source: Pilatus PC-6 airplane flight manual

[13] Pitch trim runaway is an uncontrolled movement of the aircraft's trim system causing uncommanded nose-up or nose-down pitch.

The AFM included the following procedure (Figure 7) for jammed trim actuators:

Figure 7: Jammed horizontal stabiliser trim actuator emergency procedure

JAMMED TRIM ACTUATORS

If an actuator becomes jammed in an extreme position, control forces will increase.

1.	Airspeed	REDUCE to obtain acceptable residual control forces

WARNING

MINIMUM SAFE AIRSPEEDS MUST BE OBSERVED.

2. Land as soon as practical

In addition, the following has to be performed for a jammed horizontal stabilizer trim actuator, depending on position jammed.

JAMMED IN THE FULLY NOSE UP POSITION

CAUTION

WITH AN AFT CENTER OF GRAVITY DO NOT USE FLAPS FOR LANDING.

JAMMED IN FULLY NOSE DOWN POSITION

In Cruise

1.	Flaps	SET TO position (below 95 kts)

For Landing

1.	Flaps	SET LD position

Source: Pilatus PC-6 airplane flight manual

The AFM also included the following procedure (Figure 8) for loss of elevator control:

Figure 8: Loss of elevator control emergency procedure

LOSS OF ELEVATOR CONTROL

CAUTION

THE PITCH TRIM IS POWERFUL AND LARGE TRIM CHANGES CAN RESULT FROM CHANGES IN AIRSPEED AND POWER. TO AVOID LARGE PITCH EXCURSIONS, AVOID LARGE POWER CHANGES AND ADJUST ELEVATOR TRIM CONSTANTLY.

1.	PWR	OUT of Beta range
2.	Elevator trim	OPERATE to achieve required aircraft attitude
3.	Land as soon as practical	

WARNING

MINIMUM SAFE AIRSPEEDS HAVE TO BE OBSERVED

NOTES

It is recommended to perform a controllability check (simulated approach/ landing attitude) at a safe altitude.

Consider use of FLAPS to assist in maintaining the required aircraft attitude.

Source: Pilatus PC-6 airplane flight manual

Beta mode

The AFM described beta mode as 'operation of the propeller used in flight to achieve fast deceleration and high rates of descent'. The AFM stated:

> In the beta range, the propeller blades are set at a low positive pitch angle to provide a braking effect for steep controlled descents. When operating in the beta mode, the propeller pitch angle is controlled by power lever movement between the lift detent and the point where constant speed operation becomes effective.
>
> **NOTE**
>
> BETA MODE is provided in descent at airspeeds below 100 KIAS [kt indicated airspeed] with the POWER lever near or at the detent. Only small movements of the POWER lever are necessary to change rate of descent or airspeed. Approaches in full BETA MODE (POWER lever at detent) are not permitted at airspeeds below 1.3 V_s.[14]

Meteorological information

The Bureau of Meteorology aerodrome forecast for Moruya Airport, issued at 1109 on 27 September 2025 included wind from 090° at 5 kt, which was expected to change to

[14] Vs - Stall speed or minimum steady flight speed for which the aircraft is still controllable.

310° and become gusty between 1200 and 1300. The grid point wind and temperature chart showed the forecast winds:

- at 10,000 ft from 270° at 42 kt
- at FL 140 from 270° at 51 kt.

The Bureau of Meteorology had also issued SIGMETs[15] for severe turbulence below 8,000 ft and mountain waves from 4,000 ft to FL 320 in an area that included Moruya Airport, between 1100 and 1500.

The conditions recorded in the METAR[16] at Moruya Airport at 1400 included wind from 130° at 6 kt, visibility greater than 10 km, temperature 22°C, and QNH[17] 1,007 hPa.

Recorded data

The ATSB conducted preliminary analysis of the aircraft's 3-dimensional position information recorded in the ADS-B data for the 9 flights on 27 September 2025, the last of which was the accident flight. The positional data was interpolated between recorded positions and a trajectory analysis conducted to estimate other flight performance and handling parameters. The analysis was based on the forecast wind and an estimated aircraft weight of 1,587 kg (3,500 lb). For most of the flights, there was no recorded ADS-B data below about 4,000 ft above mean sea level.

A comparison of the following key parameters for the 9 flights was conducted for the descent following parachute drop from about FL 140:

- altitude
- descent rate
- estimated calibrated airspeed
- estimated pitch and roll angles.

For flights 1–5, 7 and 8, the values of these parameters were similar. In those 7 flights, the descent commenced at an airspeed of about 55–70 KCAS, with an initial nose-down pitch of about 30° and either a right or left roll of about 30° (on flight 4 the roll angle was possibly up to 50°). The maximum descent rate for these 7 flights was between about 5,500 and 8,000 fpm.

On flight 6, the descent was initiated slightly slower, at about 54 KCAS, which increased within 10 seconds to about 145 KCAS, coincident with a maximum momentary descent rate of about 14,000 fpm, a steep (70°) pitch down in conjunction with a substantial roll right.

The descent on the accident flight (flight 9) was initiated at about 53 KCAS from 14,200 ft to a nose-down pitch of about 25°, with a 60° right roll. The aircraft briefly reduced pitch slightly before nosing vertically down (about 90°) in a left roll, reaching a maximum descent rate of over 20,000 fpm. The aircraft then pitched up to a shallow climb and into a roll of more than 120°. From the data it could not be confirmed whether this manoeuvre was conducted upright or inverted. Passing about 9,600 ft, the airspeed reduced to

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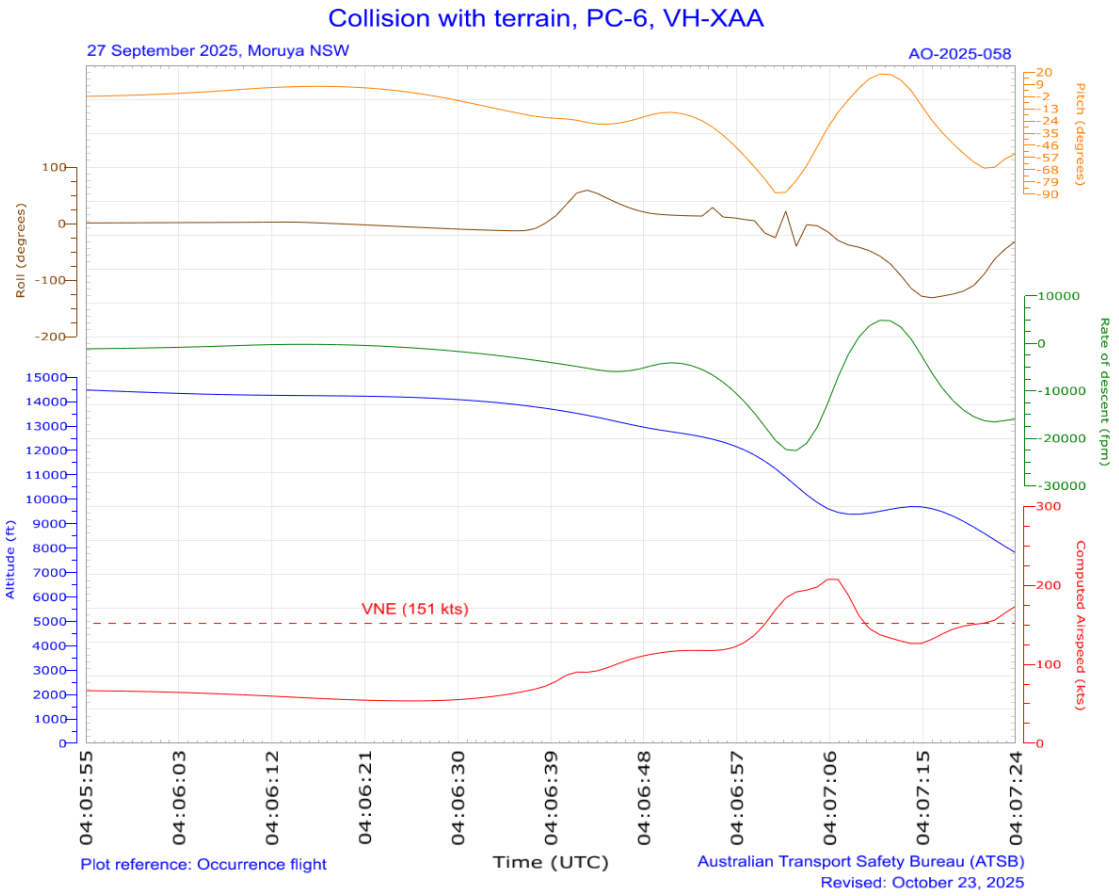
[15] SIGMET: a concise description of the occurrence or expected occurrence, in an area over which area meteorological watch is maintained, of specified phenomena which may affect the safety of aircraft operations.

[16] METAR: a routine report of meteorological conditions at an aerodrome. METAR are normally issued on the hour and half hour.

[17] QNH: the altimeter barometric pressure subscale setting used to indicate the height above mean seal level.

125–130 KCAS before increasing again. The last recorded position, passing about 8,000 ft indicated the aircraft had accelerated to 173 KCAS, with a final descent rate above 15,000 fpm (Figure 9).

Figure 9: Preliminary plot of key parameters from the accident flight descent

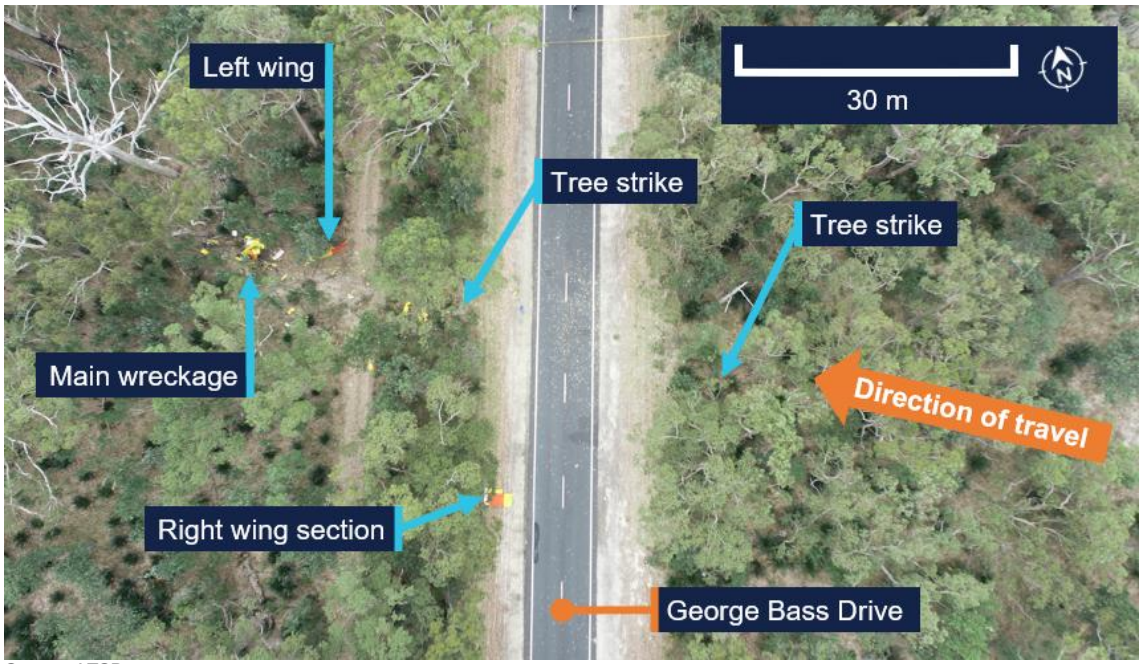


Due to the aircraft's manoeuvring, the roll information may be inaccurate. Local time was UTC+10 hours.
Source: ATSB

Site and wreckage

The wreckage site was about 2.5 km north (and slightly west) of the northern end of the Moruya Airport runway 36. ATSB examination showed that the right wing struck a tree on the eastern side of George Bass Drive and separated from the fuselage, before the aircraft collided with trees on the western side of the road and subsequently impacted terrain in a nose-down inverted attitude (Figure 10). The outer section of the right wing landed on the road but was moved clear by members of the public shortly after the accident.

Figure 10: Overview of VH-XAA accident site

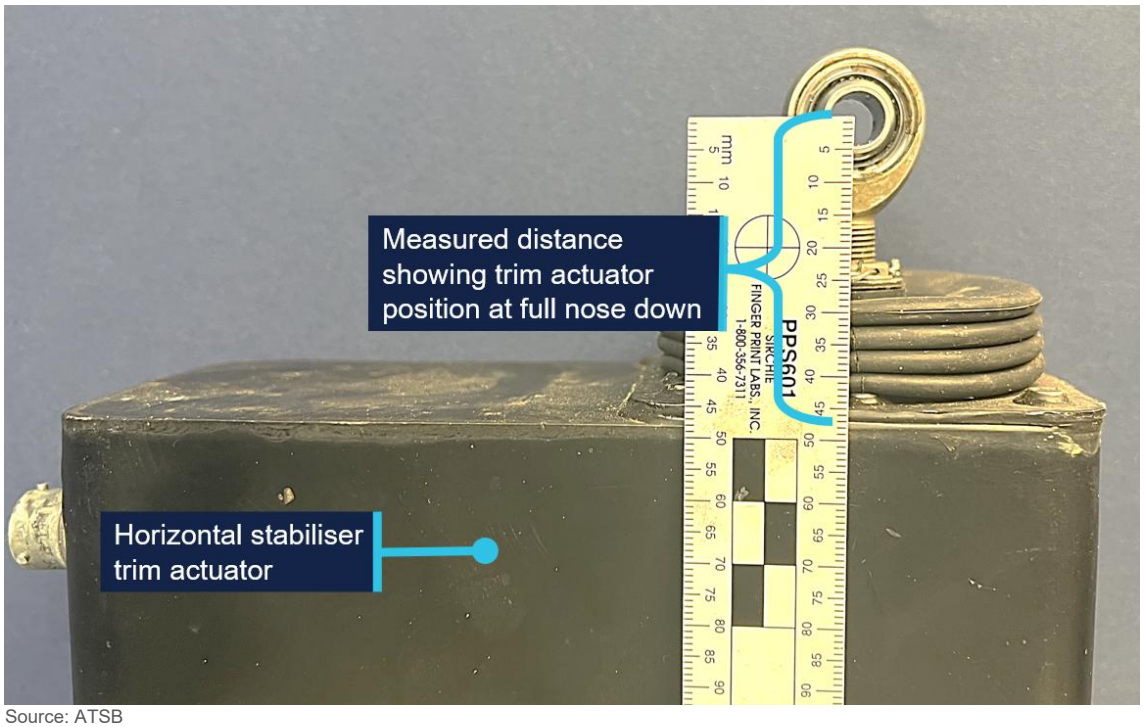


Source: ATSB

The examination identified:

- there was fuel remaining and no post-impact fire occurred
- all major components of the aircraft were at the site, indicating there was no in-flight breakup
- the propeller had indications that the engine was producing power at impact
- there were no indications of any pre-impact mechanical anomalies that would have precluded normal engine operation
- the pilot's 4-point restraint was undone, and the pilot was almost certainly not in the pilot seat at the time of impact
- the horizontal stabiliser trim actuator was found in the full nose-down position (Figure 11).

Figure 11: Horizontal stabiliser trim actuator showing trim position



Source: ATSB

Further investigation

To date, the ATSB has:

- interviewed witnesses and involved parties
- obtained pilot and aircraft documentation
- analysed recorded data
- reviewed recorded audio transmissions
- assessed the accident site and examined the aircraft wreckage.

The investigation is continuing and will include further examination of:

- the horizontal stabiliser trim system
- recorded flight data
- aircraft configuration, maintenance and documentation
- operational procedures and documentation
- pilot training records
- survivability and opportunity for egress
- other similar occurrences.

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

Acknowledgements

The ATSB would like to acknowledge the assistance of the NSW Police Force, Fire and Rescue NSW, and first responders.

General details

Occurrence details

Date and time:	27 September 2025, 1408 Eastern Standard Time	
Occurrence class:	Accident	
Occurrence categories:	Loss of control, Collision with terrain	
Location:	2.5 km 355° from Moruya Airport, New South Wales	
	Latitude: 35.8799° S	Longitude: 150.1475° E

Aircraft details

Manufacturer and model:	Pilatus Aircraft Ltd PC-6/B2-H4	
Registration:	VH-XAA	
Operator:	Jump Aviation Pty Ltd	
Serial number:	809	
Type of operation:	Part 105 Parachuting	
Activity:	General aviation / Recreational – Sport and pleasure flying – Parachute dropping	
Departure:	Moruya Airport, New South Wales	
Destination:	Moruya Airport, New South Wales	
Persons on board:	Crew – 1	Passengers – 8 (exited at flight levels)
Injuries:	Crew – 1 fatal	Passengers – none
Aircraft damage:	Destroyed	

About the ATSB

The **Australian Transport Safety Bureau** is the national transport safety investigator. Established by the *Transport Safety Investigation Act 2003* (TSI Act), the ATSB is an independent statutory agency of the Australian Government and is governed by a Commission. The ATSB is entirely separate from transport regulators, policy makers and service providers.

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- influencing safety action.

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- 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.

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