

**Aviation Safety Investigation Report
199403499**

**Vans Aircraft
RV-4**

22 November 1994

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Occurrence Number: 199403499 **Occurrence Type:** Accident
Location: Norwin near Cecil Plains
State: QLD **Inv Category:** 3
Date: Tuesday 22 November 1994
Time: 1815 hours **Time Zone:** EST
Highest Injury Level: Fatal
Injuries:

	Fatal	Serious	Minor	None	Total
Crew	1	0	0	0	1
Ground	0	0	0	0	0
Passenger	0	0	0	0	0
Total	1	0	0	0	1

Aircraft Manufacturer: Vans Aircraft
Aircraft Model: RV-4
Aircraft Registration: VH-SWB **Serial Number:** DA7
Type of Operation: Non-commercial Pleasure/Travel
Damage to Aircraft: Destroyed
Departure Point: Norwin QLD
Departure Time: 1810 EST
Destination: Norwin QLD

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Private	25.0	1630

Approved for Release: Tuesday, October 10, 1995

FACTUAL INFORMATION

History of the Flight

The pilot had carried out a local flight with his wife, and a number of circuits and landings were made at the property airstrip. His wife then alighted from the aircraft and went inside the residence which was adjacent to the runway. The pilot had said he intended to do a few more circuits and landings. The aircraft was heard taking off a few minutes later, and witnesses located to the south of the strip saw it making what appeared to be a "flat" left turn onto a northerly heading. The witnesses said the aircraft was about 100 m above ground level and that the engine noise level was low. The aircraft then went out of their field of view. A short time later, the crashed aircraft was discovered by a neighbour who was driving towards the property. The weather was fine and there was a light southerly wind at the time.

Impact Information

The aircraft impacted flat ground whilst upright, descending, and slightly left-wing low. It then bounced beneath powerlines which were approximately 11 m high, and across a road in a direction of 315 degrees. The canopy, ailerons, and various small pieces of aircraft separated before the aircraft came to rest upright, 52 m from the initial impact point. There was no fire. The point of impact was about 300 m to the north of the airstrip which is aligned northeast-southwest.

Wreckage Examination

Detailed technical examination of the aircraft was carried out. Specialist examination of a portion of the exhaust pipe confirmed that the engine had been operating at the time of the accident, albeit at low power, as evidenced by the nature of damage to the propeller and the spinner. There were no mechanical defects found that would have prevented the engine from operating normally.

The structure of the aircraft was examined and no pre-existing structural defects were found. However, a fibreglass fairing from the base of the tailfin had become detached in such a way that it could have restricted the movement of the elevator control surface. Two small screws had pulled out of the lower rear edge of the fairing. A white paint witness mark on the fairing matched the top inboard edge of the left elevator, and showed that the two surfaces had at some stage been in contact. When the fairing was placed against the elevator with the witness marks aligned, it was evident that the detached section of fairing could restrict the upward movement of the elevator. In addition, the elevator trim tab was found in the fully down position.

ANALYSIS

The available evidence does not support pilot incapacitation being a factor in this accident.

Examination of the aircraft indicated that it was capable of operating normally at the time of impact. However, there is a possibility that a fibreglass fairing had detached in flight and restricted up movement of the elevators. The elevator trim tab appears to have been fully down at the time of impact, as it had punctured the rudder surface in that position. This trim-tab position is that which normally gives full nose-up trim. However, if the elevator were restricted in upwards movement and only the tab was movable, then downwards movement of the tab would result in a nose-down effect, the reverse of that expected by the pilot.

A control working in the opposite sense to that expected would be extremely confusing to the pilot. A pilot placed in this situation might reduce the power, because the effect of controls is influenced by power and airspeed. The witnesses who saw the aircraft said it seemed to be making very little noise and was flying slow and at a low altitude. The effect of reducing power however, would be for the aircraft to adopt a nose-down attitude, compounding the difficulty faced by the pilot.

The pilot was possibly attempting to fly the aircraft back onto the airstrip. From the position of the aircraft before ground impact, and in relation to the airstrip, the pilot would have had to make a left descending turn to align the aircraft with the strip. At this point it would have also been necessary to make a power reduction. This would have further compounded the nose-down tendency of the aircraft which the pilot would have instinctively tried to overcome with the use of nose up trim, further exacerbating the nose-down tendency.

While the above hypothesis offers an explanation for the circumstances of the accident, it relies on an assumption that the fibreglass fairing became detached before impact. However, it has not been possible to determine conclusively whether the fairing became detached before or after impact.

CONCLUSIONS

Findings

1. There was no evidence to support pilot incapacitation being a factor in this accident.
2. The aircraft was operating normally on the flight preceding the accident flight.
3. The weather was fine.
4. The aircraft was seen operating at a low altitude with low power setting immediately before the time of the accident.
5. The engine was capable of normal operation but was delivering low power at the time of impact.
6. The nature of the ground impact indicates that the pilot lost control of the aircraft.
7. The elevator trim tab was in the fully down position at the time of impact.
8. The tailfin fairing was detached and showed evidence of having been in contact with the left elevator control.
9. It could not be determined if the fairing became detached before or as a result of the impact.

Significant Factors

1. Control of the aircraft was lost at low altitude for reasons which could not be determined.
2. The pilot was unable to prevent ground impact.