

**LIMITED OCCURRENCE INVESTIGATION REPORT – DRAFT**

|   |  |                 |                                   |                      |   |                          |    |
|---|--|-----------------|-----------------------------------|----------------------|---|--------------------------|----|
| <b>Reference Number</b>   | CA18/2/3/10592   |                 |                                   |                      |   |                          |    |
| <b>Classification</b>   | Accident   | <b>Date</b>     | 14 June 2025                      |                      | <b>Time</b>                                 | 0535Z                    |    |
| <b>Type of Operation</b>  | Private (Part 94)  |                 |                                   |                      |   |                          |    |
| <b>Location</b>   |  |                 |                                   |                      |   |                          |    |
| Place of Departure  | Dundi Lodge Private Airstrip, Northern Cape Province                           |                 | Place of Intended Landing         |                      | Morningstar Airfield, Western Cape Province |                          |    |
| Place of Occurrence   | Left side of Runway 08 at Dundi Lodge Private Airstrip, Northern Cape Province |                 |                                   |                      |   |                          |    |
| GPS Co-ordinates  | Latitude   | 28°37'37.58" S  | Longitude                         | 20°19'28.79" E       | Elevation                                   | 2 200ft                  |    |
| <b>Aircraft Information</b>   |  |                 |                                   |                      |   |                          |    |
| Registration  | ZU-ORG   |                 |                                   |                      |   |                          |    |
| Make; Model; S/N  | Vans; RV-9 (Serial Number: 91013)  |                 |                                   |                      |   |                          |    |
| Damage to Aircraft  | Substantial  |                 |                                   | Total Aircraft Hours | 662.6                                       |                          |    |
| <b>Pilot-in-command</b>   |  |                 |                                   |                      |   |                          |    |
| Licence Type  | Private Pilot Licence (PPL)  |                 | Gender                            | Male                 |   | Age                      | 56 |
| Licence Valid   | Yes  | Total Hours     | 179.20                            |                      | Total Hours on Type                         | 179.20                   |    |
| Total Hours 30 Days   | 3.7  |                 | Total Flying on Type Past 90 Days | 8.8                  |   |                          |    |
| <b>People On-board</b>  | 1+1  | <b>Injuries</b> | 0                                 | <b>Fatalities</b>    | 0   | <b>Other (on ground)</b> | 0  |
| <b>What Happened</b>  |  |                 |                                   |                      |   |                          |    |
| <p>On Saturday, 14 June 2025, a pilot and a passenger on-board a Vans RV-9 aircraft with registration ZU-ORG intended to take-off from Dundi Lodge Private Airstrip in Northern Cape province to Morningstar Airfield in Western Cape province when the accident occurred. The flight was to be conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The pilot reported that a pre-flight inspection of the aircraft was conducted, and no anomalies were observed. The aircraft had approximately 136 litres (L) of Aviation Gasoline (Avgas) 100LL fuel in the tanks. It departed from Runway (RWY) 08 at Dundi Lodge Private Airstrip at approximately 0530Z with the engine power set at 2 700 revolutions per minute (RPM).</p> <p>During the take-off roll on the paved runway, the pilot lost directional control of the aircraft. He then applied the right rudder to regain control but was unsuccessful. The aircraft veered off to the left of the runway and exited the paved surface; it impacted some trees before it came to a stop approximately 500 metres (m) to the left of RWY 08.</p> |  |                 |                                   |                      |   |                          |    |

The pilot and the passenger were not injured after the accident sequence. The aircraft sustained substantial damage to the undercarriage, fuselage, left-wing leading edge and tailwheel, as well as horizontal and vertical stabilisers.

The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 28°37'37.58" South 20°19'28.79" East, at an elevation of 2 200 feet (ft).

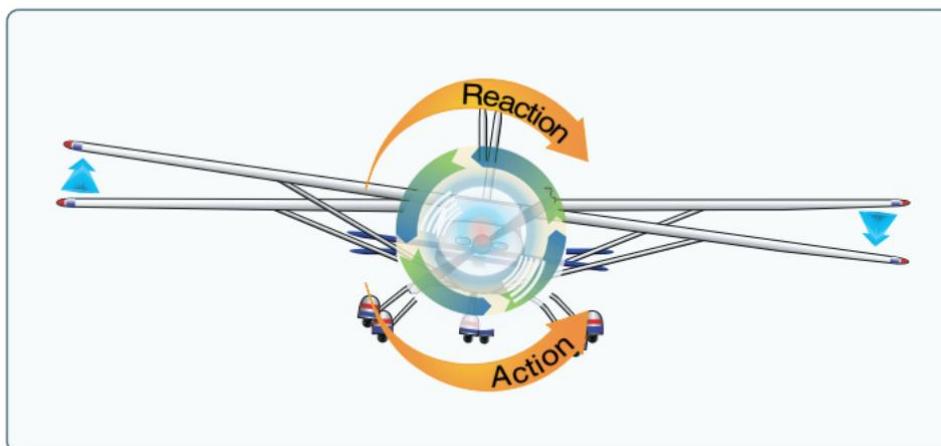


**Figure 1:** Aerial view of the accident site and Dundi Lodge. (Source: Google Earth)



**Figure 2:** The aircraft in its resting position after the accident. (Source: Pilot)

*Torque reaction involves Newton's Third Law of Physics—for every action, there is an equal and opposite reaction. As applied to the aircraft, this means that as the internal engine parts and propeller are revolving in one direction, an equal force is trying to rotate the aircraft in the opposite direction see Figure 5-47.*



**Figure 5-47.** *Torque reaction.*

*When the aircraft's wheels are on the ground during the take-off roll, an additional turning moment around the vertical axis is induced by torque reaction. As the left side of side of the aircraft is being forced down by torque reaction, more weight is being placed on the left main landing gear. This results in more ground friction, or drag, on the left tyre than on the right, causing a further turning moment to the left. The magnitude of this moment is dependent on many variables. Some of these variables are:*

- 1. Size and horsepower of engine*
- 2. Size of propeller and the rpm*
- 3. Size of the aircraft*
- 4. Condition of the ground surface*

*This yawing moment on the take-off roll is corrected by the pilot's proper use of the rudder or rudder trim.*

#### **Findings**

##### **1. Personnel Information**

- 1.1. The pilot had a Private Pilot Licence (PPL) that was initially issued by the Regulator (SACAA) on 14 August 2021. The licence was reissued on 23 August 2024 with an expiry date of 31 August 2026. The pilot had accumulated a total of 179.20 flight hours on the aircraft type.

1.2. The pilot had a Class 2 aviation medical certificate that was issued with no restrictions, valid until 31 August 2025.

## 2. Aircraft information

2.1. The aircraft's latest 100-hour annual inspection prior to the accident was certified on 15 April 2025 at 549.50 total airframe hours. The aircraft had accrued 113.10 hours since the said inspection.

2.2. The aircraft was issued a Certificate of Release to Service (CRS) on 15 April 2025 at 549.50 airframe hours. The CRS had an expiry date of 15 April 2026 or at 649.50 airframe hours, whichever occurs first.

2.3. The aircraft had a valid Authority-to-fly (ATF) Certificate that was initially issued on 10 March 2020. The latest ATF had an expiry date of 31 March 2026.

2.4. The aircraft's Certificate of Registration (C of R) was issued to the present owner on 28 April 2021.

## 3. Meteorological Information

3.1. Based on the information provided by the pilot on the pilot's questionnaire, the weather was not a factor in this accident.

4. The pilot lost directional control of the aircraft during the take-off roll on RWY 08 because of the failure to compensate for engine torque effect. This resulted in the aircraft drifting to the left before it exited to the left side of the runway and impacted some trees.

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| <b>Probable Cause(s)</b>   |
| Loss of directional control during the take-off roll on Runway 08 due to failure to compensate for engine torque effect. |
| <b>Contributing Factor(s)</b>  |
| None.  |
| <b>Safety Action(s)</b>  |
| None.  |
| <b>Safety Message and/or Safety Recommendation/s</b>   |
| None.  |

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| <p><b>About this Report</b></p> <p><i>The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.</i></p> <p><i>All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.</i></p> |
| <p><b>Purpose</b></p> <p><i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.</i></p>   |
| <p><b>Disclaimer</b></p> <p><i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i></p>   |

**This report is issued by:**

**Accident and Incident Investigations Division  
South African Civil Aviation Authority  
Republic of South Africa**