LIMITED OCCURRENCE INVESTIGATION REPORT – DRAFT

Reference Number	CA18/3/2/1487						
Classification	Serious Incident	**Date**	19 June 2025		**Time**	1451Z	
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Wonderboom Aerodrome (FAWB), Gauteng Province	Place of Intended Landing	Freeway Park Aerodrome (FAFW), Gauteng Province				
Place of Occurrence	Approximately 3 metres to the right of Runway 02 at FAFW, Gauteng Province						
GPS Co-ordinates	Latitude	25°29' 03" S	Longitude	28° 17' 20" E	Elevation	3 838ft	
Aircraft Information							
Registration	ZU-WMM						
Make; Model; S/N	Sling 2 (Serial Number:144)						
Damage to Aircraft	Minor	Total Aircraft Hours	2 742				
Pilot-in-command							
Licence Type	Commercial Pilot Licence (CPL)	Gender	Male	Age	30		
Licence Valid	Yes	Total Hours	724.8	Total Hours on Type	35.2		
Total Hours 30 Days	9.9	Total Flying on Type Past 90 Days	35.2				
People On-board	1+1	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Thursday, 19 June 2025, a flight instructor (FI) and a pilot on-board a Sling 2 aircraft with registration ZU-WMM took off from Wonderboom Aerodrome (FAWB) in Gauteng province to Freeway Park Aerodrome (FAFW) in the same province to conduct touch-and-go landings in preparation for the pilot's renewal of his Private Pilot Licence (PPL). The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.

The FI stated that a pre-flight inspection of the aircraft was completed with no anomalies found. At the time of departure from FAWB, the fuel tanks contained approximately 98 litres (L) of Mogas. The aircraft departed at approximately 1411Z with the power set to 5 700 revolutions per minute (RPM).

Upon reaching FAFW, the crew conducted a successful touch-and-go landing on Runway (RWY) 02. Shortly after becoming airborne again, the FI initiated a simulated engine failure after take-off (EFATO) as part of the training exercise upon reaching an elevation of approximately 3818 feet (ft); there was sufficient runway remaining for a safe landing. The FI reduced the throttle, and the aircraft was configured with first-stage flaps as well as a power setting of 75 knots indicated airspeed (KIAS)

in preparation for landing on RWY 02 before performing another touch-and-go landing. After receiving confirmation from the FI, the pilot applied back pressure on the control column; however, the aircraft had a high rate of descent and, subsequently, landed hard. After touching down, the aircraft's right main wheel separated from the strut and struck the leading edge of the horizontal stabiliser. Despite the damage, the pilot maintained directional control of the aircraft for most of the landing roll. During this time, the engine was shut down and isolated as a precautionary measure as the aircraft was out of balance due to the broken strut. However, towards the end of the landing roll, the pilot lost directional control of the aircraft which veered off to the right of RWY 02. The aircraft came to a stop approximately 3 metres (m) from RWY 02. There was no additional damage to the aircraft during the runway excursion. Both occupants were not injured; they deplaned the aircraft without assistance.

The serious incident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 25°29' 03" South 28° 17' 20" East, at an elevation of 3 838 ft.

Figure 1: An aerial view of the serious incident site. (Source: Google Earth)

Figure 2: The aircraft as it came to rest. (Source: Flight Instructor)

What is a Hard Landing? (Source: https://www.aviationfile.com/hard-landing-in-aviation-causes-risks-and-prevention-strategies)

A hard landing refers to an aircraft touching down on the runway with a vertical acceleration or descent rate exceeding acceptable limits. These limits vary by aircraft type but typically fall between 1.5 and 2.5 times the force of gravity (G). Hard landings are recorded when the landing gear experiences high loads, putting significant stress on the aircraft's structure. While not always causing immediate damage, repeated hard landings can lead to structural fatigue over time.

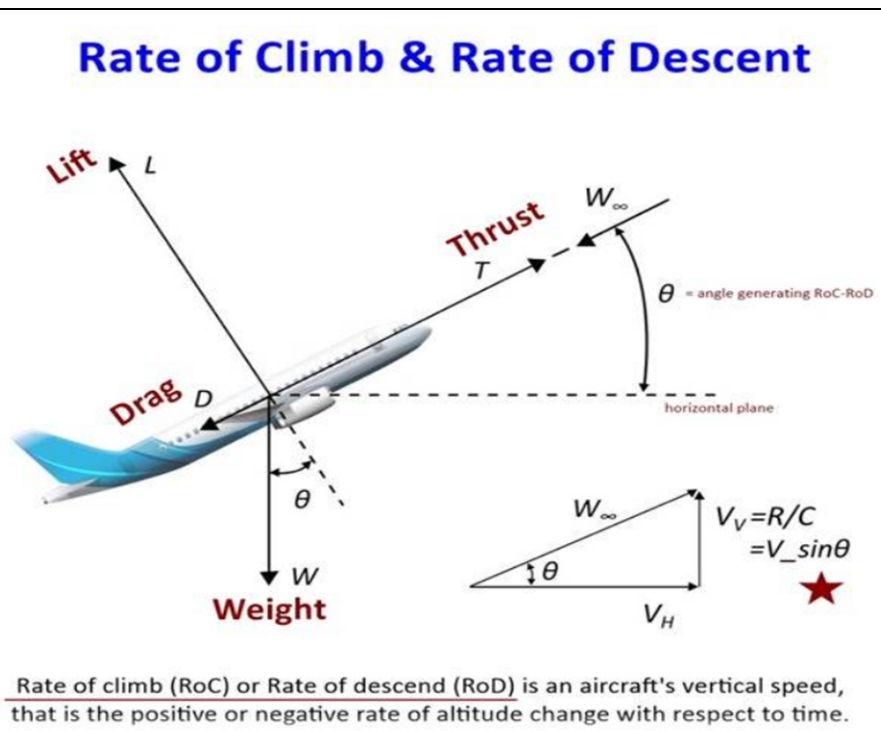

Diagram 1: The illustration shows a rate of climb and rate of descent.

Engine Failure After Take-off (EFATO) Procedure (Source: Sling 2 [POH])

1. *Maintain Best Glide Speed*
    - *Adjust speed and trim to 72 KIAS — this is the best glide speed (V_BG) for maximum distance.*
2. *Select a Safe Landing Area*
    - *Identify a suitable landing spot directly ahead, ideally requiring no more than 45° of change in direction.*
3. *Set Flaps as Required*
    - *Deploy flaps as needed to reduce landing speed and control the descent.*
4. *Power Down Electrical and Fuel Systems (Before Touch-Down)*
    - *Magnetos / Ignition: Off (main bus)*
    - *Fuel Selector Valve: Off*
    - *Master Switch: Off*
    - *Electric Fuel Pump(s): Off (both, depending on engine type)*
    - *Note: Power to flaps and elevator trim is lost once the master switch is off—complete your final flap and trim adjustments before turning it off.*

Figure 3: A Sling 2 cockpit panel.

Findings

1. Personnel Information

1.1. The flight instructor (FI) had a Commercial Pilot Licence (PPL) that was initially issued by the Regulator (SACAA) on 3 August 2019. The licence was reissued on 22 May 2025 with an expiry date of 31 May 2026. The FI had accumulated a total of 734.8 flight hours of which 35.2 hours were on the aircraft type.

1.2. The FI had a Grade 3 flight instructor rating that was issued on 16 May 2025 with an expiry date of 31 May 2026.

1.3. The FI had a Class 1 aviation medical certificate that was issued on 20 December 2024 with an expiry date of 31 December 2025, and with no restrictions.

1.4. The pilot had a Private Pilot Licence (PPL) that was initially issued by the Regulator on 21 August 2014. The licence was reissued on 22 July 2022 with an expiry date of 31 July 2024. The pilot had applied for the PPL renewal on 28 July 2025.

1.5. The pilot had flown a total of 135.3 hours on the aircraft type.

1.6. The pilot had a Class 2 aviation medical certificate that was issued on 23 May 2025 with an expiry date of 29 April 2030, with no restrictions.

2. Aircraft Information

2.1. The aircraft was maintained by an approved person (AP). The latest maintenance inspection of the aircraft was certified on 29 November 2024 at a total of 2 663.1 airframe hours. The aircraft had accrued 78.9 hours since the said inspection.

2.2. The aircraft was issued a Certificate of Release to Service (CRS) on 29 November 2024 at 2 663.1 airframe hours with an expiry date of 28 November 2025 or at airframe 2 762.5 hours, whichever occurs first.

2.3. The aircraft had a valid Authority-to-fly (ATF) Certificate that was initially issued on 22 November 2022. The latest ATF had an expiry date of 21 November 2025.

2.4. The aircraft's Certificate of Registration (C of R) was issued to the present owner on 22 January 2014.

3. Meteorological Information

3.1. Based on the information provided by the pilot through the pilot's questionnaire, the weather was not a factor to this serious incident.

4. Conclusion

4.1 The high rate of descent during the landing roll resulted in a hard landing; subsequently, the FI lost directional control and the aircraft veered off RWY 02.

Probable Cause(s)
Hard landing due to the high rate of descent which resulted in a runway excursion.
Contributing Factor(s)
None.
Safety Action(s)
None.
Safety Message and/or Safety Recommendation/s
None.
About this Report
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.

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.

Purpose

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.

Disclaimer

This report is issued by:

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