



LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10622						
Classification	Accident		Date	6 December 2025		Time	0710Z
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Musina Airfield (FAMH), Limpopo Province		Place of Intended Landing	Polokwane Civil Airport (FAPI), Limpopo Province			
Place of Occurrence	Field covered with thorn bushes near Kalkspruit in Limpopo Province						
GPS Co-ordinates	Latitude	23°44'22" S	Longitude	028°55'34 E	Elevation	3 604ft	
Aircraft Information							
Registration	ZS-WJE						
Make; Model; S/N	Raptor Trike (Serial Number: ARW044)						
Damage to Aircraft	Substantial		Total Aircraft Hours	681.7			
Pilot-in-command							
Licence Type	National Pilot Licence (NPL)		Gender	Male		Age	29
Licence Valid	Yes	Total Hours	155		Total Hours on Type	2	
Total Hours 30 Days	1		Total Flying on Type Past 90 Days	2			
People On-board	1+0	Injuries	1	Fatalities	0	Other (on ground)	0
What Happened							
<p>On Saturday morning, 6 December 2025, a pilot on-board a Raptor Trike aircraft registered ZS-WJE took off on a private flight from Musina Airfield (FAMH) to Polokwane Civil Airport (FAPI), both in Limpopo province. Visual meteorological conditions (VMC) prevailed at the time of the flight which was conducted under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011, as amended.</p> <p>According to the pilot, he conducted a pre-flight inspection of the aircraft and did not find anomalies. The aircraft was refueled to full capacity (50 litres [L]) with Octane 95 Unleaded fuel of which 0.7L was unusable. The aircraft featured a two-stroke Rotax 503 engine which powered an aft-mounted, three-bladed ground adjustable propeller. After take-off, the aircraft climbed to 4 500 feet (ft), cruising at 5 100 revolutions per minute (RPM); the pilot routed south towards FAPI with the intention to refuel before proceeding to Modimolle, also in Limpopo province. After about 1 hour of flight time, the aircraft encountered unexpected strong headwinds blowing from the south-east. At this point of flight, the pilot's battery of the mobile phone that he was using to access the Global Positioning System (GPS) application to navigate had depleted.</p>							

However, he had a spare mobile phone in the side pocket of his trousers, but he did not reach for it because he could not afford to remove his hands from the control bar as he had to maintain control of the aircraft due to the strong headwinds. As a result, he could not keep a straight path (the aircraft was descending and climbing) and, at some point, the aircraft drifted off from the planned route during which the engine stopped. The pilot tried to restart the engine several times, but to no avail. He then opted to perform a forced landing. Whilst landing on a bush-type terrain, the nosewheel rolled over a ditch and the aircraft flipped over; it was substantially damaged. The pilot sustained minor injuries and was transported to a nearby hospital for observation.

The accident occurred during daylight at GPS co-ordinates determined to be 23°44'22" South 028°55'34" East, at an elevation of 3 604 ft.

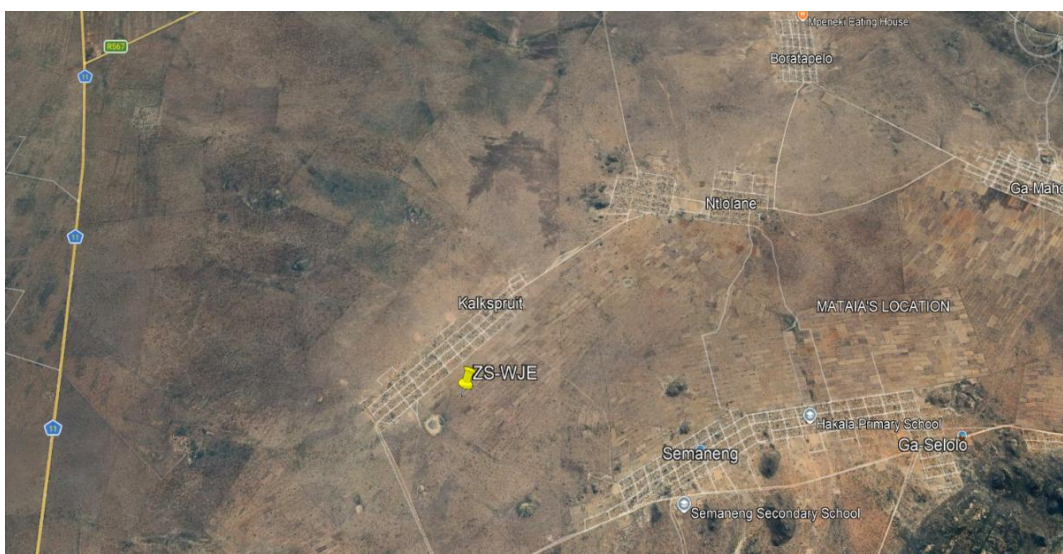


Figure 1: An aerial view of the approximate accident site (yellow pin). (Source: Google Earth)



Figure 2: The aircraft at the accident site. (Source: Emergency Medical Services)

Post-accident examination of the aircraft by an approved person (AP) revealed that the structure of the aircraft was still intact. Damage to the aircraft was due to impact with the ground in a right-bank slip and steep nose-down attitude. The impact forces caused the front of the main frame to bend left and upward. The AP's inspection of the engine found no evidence of mechanical failure. The aircraft's fuel tank and associated lines were also intact. Upon examination of the fuel system, the AP noticed that the fuel filter and the carburettor bowls did not contain fuel, an indication that the engine had stopped due to fuel exhaustion.

The pilot was interviewed and could not remember at what point he deviated from his flight path to FAPI after his mobile phone battery had depleted. Based on the manufacturer's fuel consumption rate of 13L per hour at 75 percent continuous performance, an endurance of 4 hours was achievable. With clear weather conditions prevailing, the aircraft could have reached FAPI safely in less than 3 hours.

The manufacturer was consulted and indicated that in strong headwinds, the pilot would experience an increased fuel burn ranging between 18L and 25L per hour. The investigator-in-charge (IIC) used an estimated fuel burn calculation of 18L per hour. The accident occurred after 2 hours and 40 minutes (about 102 nautical miles [nm] was covered in this rate). Therefore, the aircraft burnt an estimated 49L of fuel. This analysis was supported by the absence of fuel observed at the accident site, noticed by the Emergency Medical Services (EMS) personnel (paramedics). Later, this was acknowledged by the pilot as the cause of the accident.

Meteorological Information

The following Meteorological Aerodrome Report (METAR) was issued by the South African Weather Service (SAWS) for Polokwane International Airport (FAPP) on 6 December 2025 at 0700Z; the accident site was 45.30nm south of FAPP.

FAPP 060700Z 29002KT 9999 FEW025 24/15 Q1023 NOSIG=

Wind Direction	290°	Wind Speed	2kt	Visibility	9999 m
Temperature	24°C	Cloud Cover	Few	Cloud Base	Nil
Dew Point	15°C	QNH	1023hPa		

Findings	
1.	<u>Pilot Information</u>
1.1	The pilot had a National Pilot Licence (NPL) that was initially issued by the Regulator (SACAA) on 7 May 2025 with an expiry date of 27 March 2026.
1.2	The pilot had a Class 4 aviation medical certificate that was issued on 11 October 2024 with an expiry date of 31 October 2029.
1.3	The pilot had logged 155 total hours of which 2 hours were accrued on the aircraft type on the day of the accident (the pilot was flying the aircraft type for the first time on the day of the accident).
2.	<u>Aircraft</u>
2.1	The last 100-hour annual inspection of the aircraft was certified on 3 October 2025 at 681.7 total airframe hours.
2.2	The aircraft Certificate of Release to Service (CRS) was issued on 3 October 2025. The CRS was valid until 18 October 2026 or at 781.7 airframe hours, whichever comes first.
2.3	The aircraft was issued a Certificate of Registration (C of R) on 27 November 2024.
2.4	The aircraft had an Authority-to-Fly (ATF) Certificate that was initially issued by the Regulator on 12 November 2009. The ATF was renewed on 10 October 2025 with an expiry date of 18 October 2026.
2.5	The aircraft was airworthy when it was dispatched for the flight.
3.	<u>Meteorological Information</u>
3.1	According to the weather report, the weather conditions were fine at the time of the flight.
Probable Cause(s)	
Engine stoppage due to fuel starvation en route to FAPI prompted the pilot to perform a forced landing on a bush-type terrain, which was unsuccessful.	
Contributing Factor(s)	
Poor airmanship.	
Safety Action(s)	
None.	

Safety Message and/or Safety Recommendation/s
None.
About this Report
<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>
Purpose
<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>
Disclaimer
<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**