LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/3/2/1489						
Classification	Serious Incident	**Date**	31 July 2025		**Time**	0720Z	
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Potchefstroom Aerodrome (FAPS), North West Province	Place of Intended Landing	Potchefstroom Aerodrome (FAPS), North West Province				
Place of Occurrence	Right side of Runway (RWY) 03 at Potchefstroom Aerodrome (FAPS)						
GPS Co-ordinates	Latitude	26°40´24.73" S	Longitude	27°04´53.39" E	Elevation	4 484.9 ft	
Aircraft Information							
Registration	ZU-UEH						
Make; Model; S/N	Fournier; RF-4D (Serial Number: 4112)						
Damage to Aircraft	Substantial	Total Aircraft Hours	2 656.6				
Pilot-in-command							
Licence Type	National Pilot Licence (NPL)	Gender	Male	Age	76		
Licence Valid	Yes	Total Hours	2 931.3	Total Hours on Type	65		
Total Hours 30 Days	0.6	Total Flying on Type Past 90 Days	0.6				
People On-board	1+0	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Thursday morning, 31 July 2025, a pilot on-board a Fournier RF-4D aircraft with registration ZS-UEH took off on a private flight from Potchefstroom Aerodrome (FAPS) in North West province, with the intention to return to the same aerodrome. Visual meteorological conditions (VMC) by day 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.

According to the pilot, he conducted the pre-flight checks and no abnormalities were observed. The aircraft had a total of 38 litres (L) of 80 Octane Avgas at departure. The aircraft took off from Runway (RWY) 21 at approximately 0645Z with the engine revolutions per minute (rpm) indicating 2 700. Upon its return to FAPS, the aircraft touched down on RWY 03 at an airspeed of approximately 51.42 knots (kts).

After the landing roll, the pilot decided to backtrack the aircraft to the parking area. During the right-hand side turn (backtracking), a crosswind from the left increased the aircraft's turning radius, making it impossible to complete the turn within the confines of the RWY. The pilot taxied to the adjacent

grass area to complete the turn (rolling resistance was higher and the surface was uneven). Due to the aircraft's tailwheel configuration which positioned the aircraft in a nose-up attitude on the ground, the pilot was unable to spot the depression on the terrain whilst manoeuvring on the grass. As a result, the main landing gear rolled over the unmarked depression and the nose abruptly pitched forward. Consequently, the propeller blades struck the ground which, subsequently, led to the propeller fracture.

The pilot immediately shut down the engine and safely evacuated the aircraft. No person was injured.

The serious incident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 26°40´24.73" South 27°04´53.39" East, at an elevation of 4 484.9 feet (ft).

Figure 1: Potchefstroom Aerodrome and the approximate serious incident site. (Source: Google Earth)

Figure 2: The aircraft at its resting position on the grass terrain after the serious incident. (Source: Pilot)

Figure 3: The fractured propeller blade. (Source: Pilot)

Meteorological Information

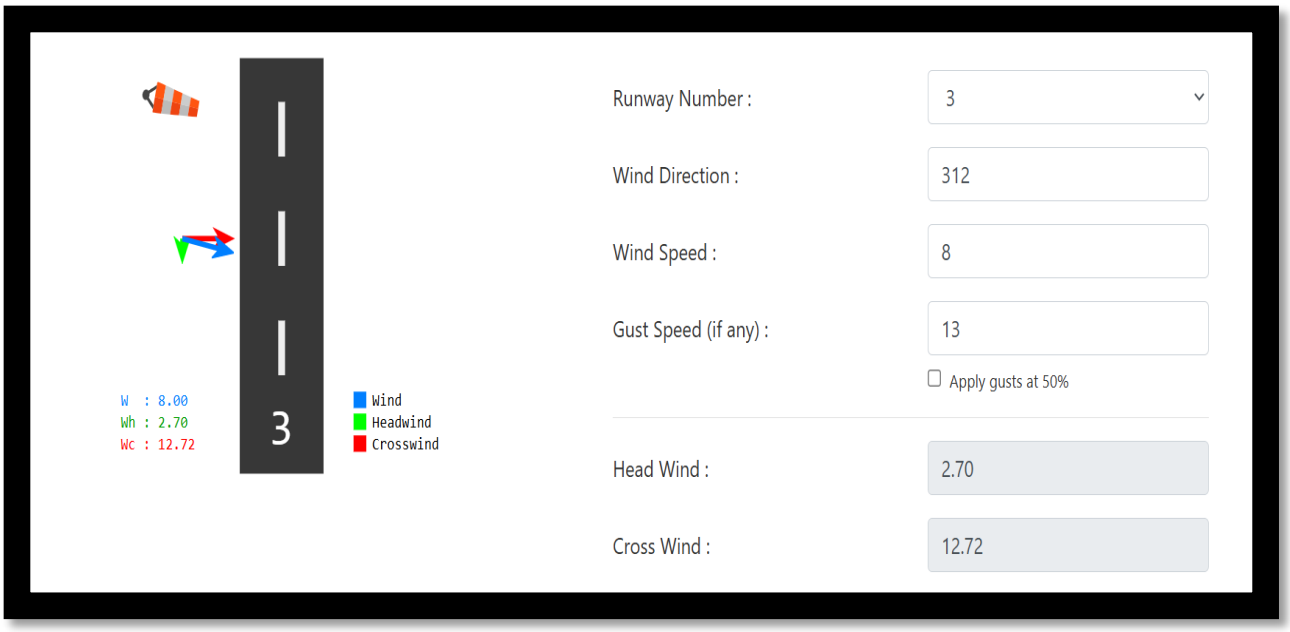
The weather information entered in the table below was obtained from the pilot questionnaire.

Wind Direction	312	Wind Speed	8kts Gust 13kts	Visibility	9999m
Temperature	21° C	Cloud Cover	N/A	Cloud Base	N/A
Dew Point	5°C	QNH	N/A		

Crosswind

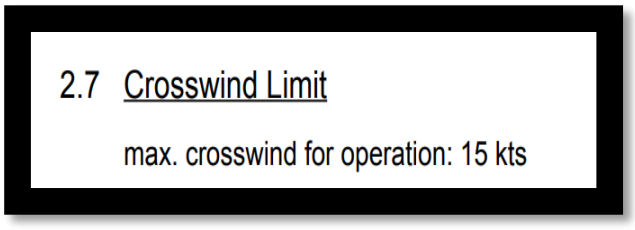
The International Civil Aviation Organisation (ICAO) describes crosswind as *"the wind blowing at an angle to the runway or aircraft's path, rather than parallel to it. More specifically, the crosswind component is the part of the wind velocity that acts perpendicular to the runway's longitudinal axis".*

Crosswind Calculation



Based on the calculation above, the aircraft experienced a 2.70 headwind and 12.72 crosswind during the manoeuvre on RWY 03.

Crosswind Limit (Source: Fournier RF-4D Flight Manual)



Whilst the crosswind of 12.72 kts is within the Fournier RF-4D demonstrated maximum of 15 kts, it would still present a significant challenge during low-speed ground handling, particularly due to the aircraft's tailwheel configuration and non-castor tailwheel.

Findings

1. Personnel Information

1.1. The pilot had a National Pilot Licence (NPL) that was initially issued by the Regulator (SACAA) on 31 May 2013. The licence was reissued on 13 May 2024 with an expiry date of 1 May 2026.

1.2. The pilot had flown a total of 2 931.3 hours of which 65 hours were on the aircraft type.

1.3. The pilot had a Class 4 aviation medical certificate that was issued on 15 July 2025 with an expiry date of 31 July 2026 with a medical condition that needed strict protocol.

2. Aircraft Information

2.1. The last annual inspection of the aircraft was certified on 4 August 2024 at 2 643.55 total airframe hours. The aircraft had accrued 13.05 hours since the last inspection.

2.2. The aircraft was maintained by the SACAA-approved person (AP).

2.3. The aircraft was issued a Certificate of Release to Service (CRS) on 4 August 2024 at 2 643.55 airframe hours with an expiry date of 31 August 2025 or at 2 748 airframe hours, whichever occurs first.

2.4. The aircraft had a valid Authority-to-fly (ATF) Certificate that was initially issued on 21 August 2020. The latest ATF Certificate was issued on 28 August 2024 with an expiry date of 31 August 2025.

2.5. The aircraft's Certificate of Registration (C of R) was issued to the present owner on 26 September 2003.

2.6. According to the Fornier RF-4D Flight Manual, the maximum allowable crosswind that the aircraft can withstand is 15 kts. The crosswind during the landing approach was 12.72 kts and the headwind was 2.70 kts which increased the turning radius of the aircraft and forced it to the grass-covered terrain. Consequently, once it was on the grass surface, the risk of encountering obstacles increased. The aircraft rolled over an unmarked depression which led to the nose pitching forward and, thus, the propeller struck the ground.

Probable Cause(s)
Crosswind-induced loss of directional control during ground manoeuvring caused the aircraft to roll over the uneven terrain which led to the propeller fracture.
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 produced without prejudice to the rights of the AIID, which are reserved.

This report is issued by:

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