SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Accident and Incident Investigations Division** Form Number: CA 12-57

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10500						
Classification	Accident		**Date**	23 September 2024		**Time**	0830Z
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Dundi Lodge Private Airstrip, Northern Cape Province		Place of Intended Landing	Raap en Skraap Private Airstrip, Northern Cape Province			
Place of Occurrence	Raap en Skraap Private Airstrip, 29.5 nautical miles (nm) south-west of Pofadder, Northern Cape Province						
GPS Co-ordinates	Latitude	28°40'30" S	Longitude	019°31'02" E		Elevation	1620 ft
Aircraft Information							
Registration	ZU-FOA						
Make; Model; S/N	Skystar Aircraft Company; Kit Fox 7 SS (Serial Number: KAO8175135)						
Damage to Aircraft	Substantial		Total Aircraft Hours			602.2	
Pilot-in-command							
Licence Type	Private Pilot Licence (PPL) Aeroplane		Gender	Male	Age	57	
Licence Valid	Yes	Total Hours	1551.1	Total Hours on Type		727.8	
Total Hours 30 Days	6.5		Total Flying on Type Past 90 Days			15.6	
People On-board	1+1	**Injuries** 0	**Fatalities**	0	**Other (on ground)**	0	

What Happened

On Monday morning, 23 September 2024, a pilot and a passenger on-board a Kit Fox 7 SS aircraft with registration ZU-FOA took off on a private flight from Dundi Lodge private airstrip to Raap en Skraap private airstrip, both situated in the Northern Cape province. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot reported that he conducted a pre-flight inspection before take-off. He stated that he had 98 litres of fuel on-board, which equated to 5.7 hours of endurance. The pair departed at 0705Z and at 0830Z, they were overhead Raap en Skraap private airstrip. The pilot observed that the wind was blowing north-easterly at approximately 25 knots (kts); the windsock was blowing horizontal to the ground). The pilot elected to use Runway (RWY) 01 to land. He then configured the aircraft for crosswind landing by selecting 2 notches (maximum) for the flaps; the aircraft's speed on final approach was 55 kts. During touch down, there was an increase in crosswind from the right and the pilot lost control of the aircraft. It veered off to the left and entered a ditch which caused substantial damage to the undercarriage and lower airframe. Occupants were not injured.

Figure 1: The aircraft stopped on the left side of RWY 01. The inset picture shows the damaged right-side tyre. (Source: Owner)

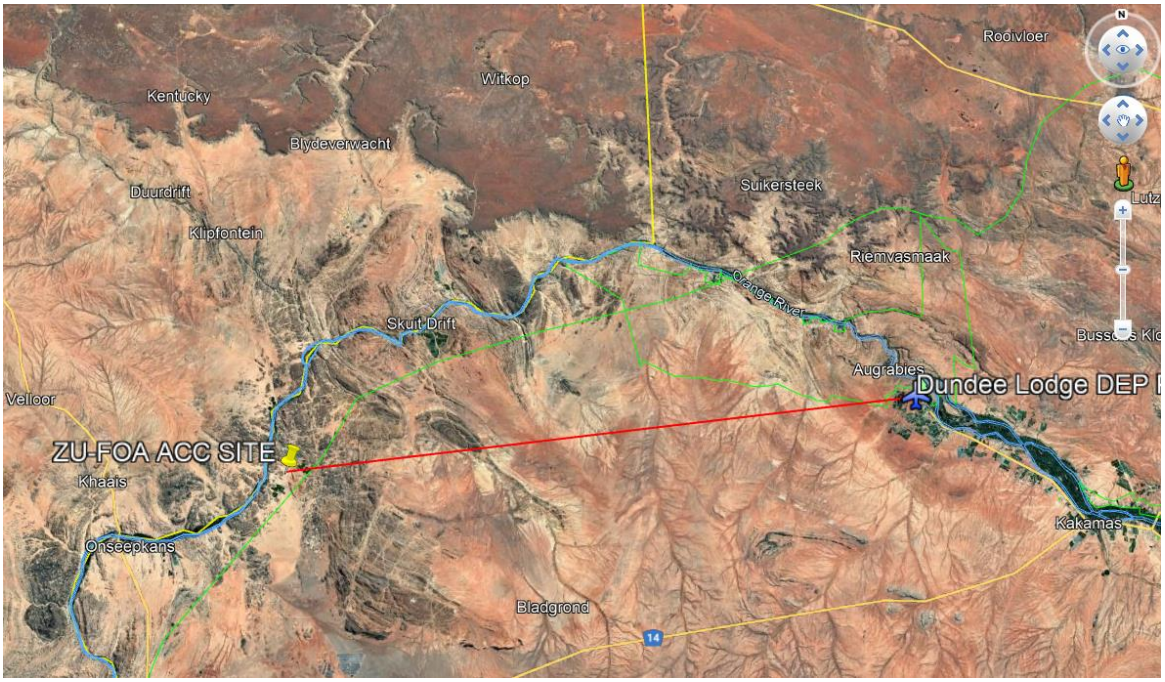

Figure 2: The track that the aircraft flew. (Source: Google Earth)

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Figure 3: The official weather used for the day was prepared for Upington, which is 214 kilometres (km) from the airstrip (Source: South African Weather Service)

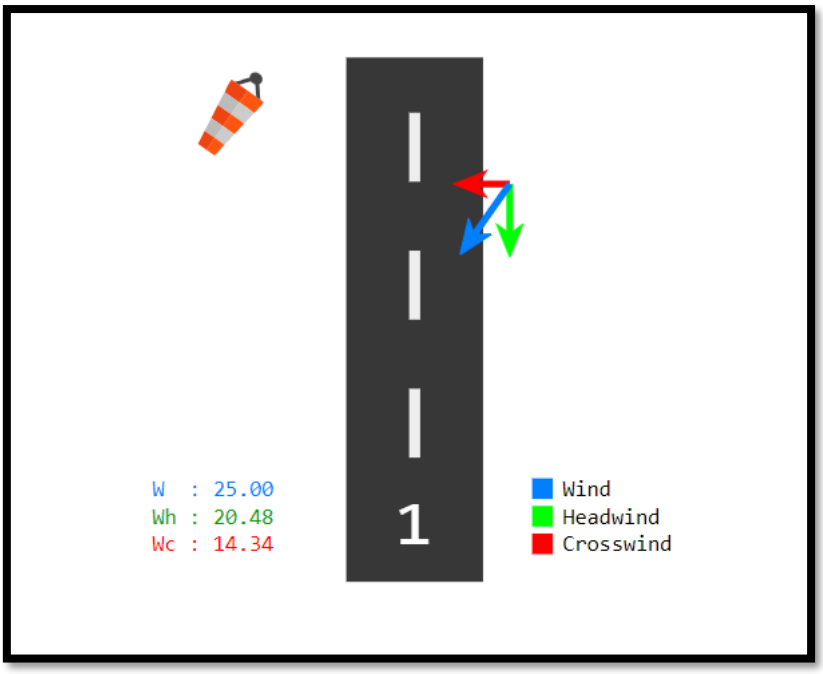
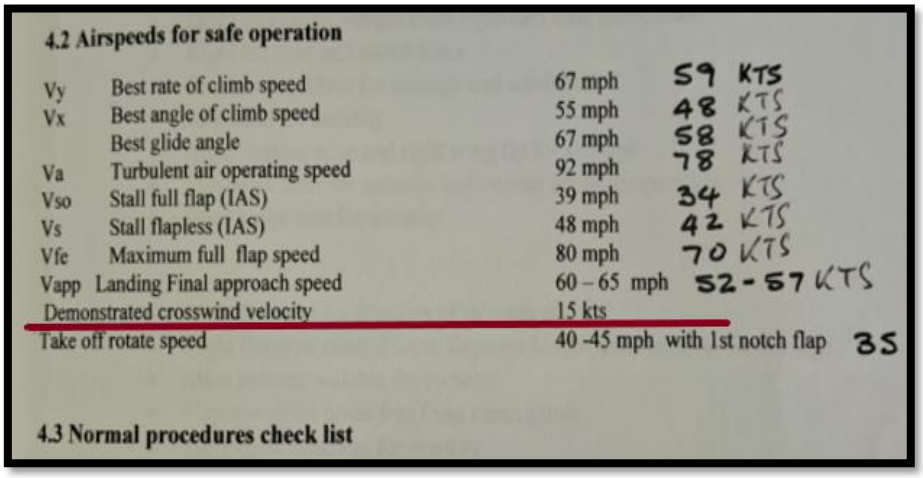


Figure 4: Crosswind on RWY 01 was 14.34 knots. The wind value was taken from the pilot questionnaire. (Source: https://e6bx.com/wind)



4.2 Airspeeds for safe operation

Vy	Best rate of climb speed	67 mph	59 KTS
Vx	Best angle of climb speed	55 mph	48 KTS
	Best glide angle	67 mph	58 KTS
Va	Turbulent air operating speed	92 mph	78 KTS
Vso	Stall full flap (IAS)	39 mph	34 KTS
Vs	Stall flapless (IAS)	48 mph	42 KTS
Vfe	Maximum full flap speed	80 mph	70 KTS
Vapp	Landing Final approach speed	60 – 65 mph	52-57 KTS
	Demonstrated crosswind velocity	15 kts	
	Take off rotate speed	40 -45 mph with 1st notch flap	35

4.3 Normal procedures check list

Figure 5: Maximum demonstrated crosswind. (Source: Pilot)

CROSSWIND AFTER-LANDING ROLL

Particularly during the after-landing roll, special attention must be given to maintaining directional control by the use of rudder and tailwheel steering, while keeping the upwind wing from rising by the use of aileron. Characteristically, an airplane has a greater profile, or side area, behind the main landing gear than forward of it. [Figure 13-3] With the main wheels acting as a pivot point and the greater surface area exposed to the crosswind behind that pivot point, the airplane will tend to turn or weathervane into the wind. This weathervaning tendency is more prevalent in the tailwheel-type because the airplane's surface area behind the main landing gear is greater than in nosewheel-type airplanes.

Figure 6: Crosswind landing procedure. (Source: FAA-Airplane Flying Handbook)

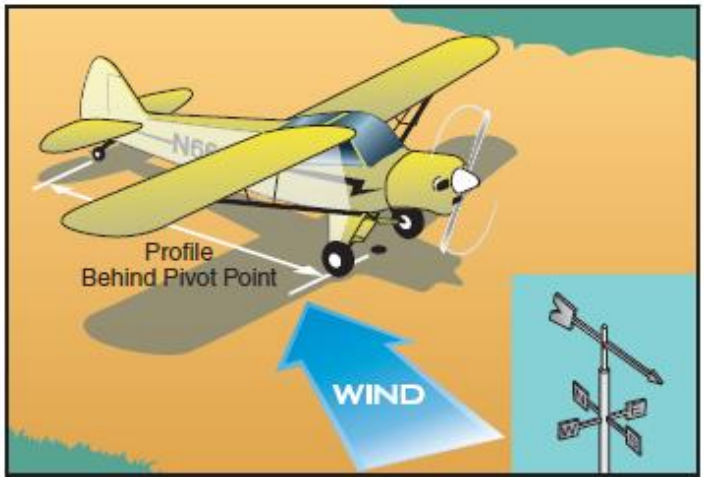


Figure 7: Weather vanning tendency. (Source: FAA-Airplane Flying Handbook)

Findings

1. Personnel Information

1.1 The pilot had a Private Pilot Licence (PPL) that was initially issued on 20 August 2002. The PPL was renewed on 24 October 2023 with an expiry date of 31 October 2025. The pilot had flown a total of 1551.1 hours of which 727.8 hours were on the aircraft type.

1.2 The pilot was issued a Class 2 aviation medical certificate on 27 August 2024 with an expiry date of 30 September 2025 with medical limitations.

2. Aircraft Information

2.1 The last 100-hour annual inspection of the aircraft was conducted and certified on 12 June 2024 at 585 airframe hours. The accident occurred at 602.2 airframe hours, which meant that the aircraft had accrued 17.2 hours since the last inspection.

2.2 The aircraft had a valid Authority-to-Fly (ATF) Certificate that was issued by the Regulator on 4 July 2024 with an expiry date of 30 September 2025. The aircraft was airworthy when it was dispatched for the flight.

2.3 The aircraft's Certificate of Registration (C of R) was issued to the present owner on 4 October 2016.

2.4 During touch down, the aircraft experienced a crosswind from the right and, as the main wheels contacted the ground, the pilot lost directional control of the aircraft.

2.5 According to the pilot's questionnaire, the crosswind was calculated at 14.34 kts and the maximum demonstrated crosswind is 15 kts.

Probable Cause(s)

The pilot lost directional control of the aircraft due to a high crosswind from the right which caused it to ground-loop after touch down.

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