LIMITED OCCURRENCE INVESTIGATION REPORT – DRAFT

Reference Number	CA18/2/3/10544										
Classification	Accident		**Date**	11 January 2025			**Time**	1116Z			
Type of Operation	Private (Part 94)										
Location											
Place of Departure	Morningstar Airfield, Western Cape Province		Place of Intended Landing	Morningstar Airfield, Western Cape Province							
Place of Occurrence	During landing on Runway 02 at Morningstar Airfield, Western Cape Province										
GPS Co-ordinates	Latitude	24°15´51'' S	Longitude	028°13´30'' E		Elevation	112 ft				
Aircraft Information											
Registration	ZU-EDE										
Make; Model; S/N	Jabiru Aircraft (Pty) Ltd; J430 (Serial Number: 266)										
Damage to Aircraft	Substantial			Total Aircraft Hours	2 132.9						
Pilot-in-command											
Licence Type	Private Pilot Licence			Gender	Male		Age	28			
Licence Valid	Yes	Total Hours	162.93	Total Hours on Type	22.6						
Total Hours 30 Days	2.8		Total Hours on Type Past 90 Days	4.6							
People On-board	1+1	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0				

What Happened

On Saturday afternoon, 11 January 2025, a pilot and a passenger on-board a Jabiru J430 aircraft with registration ZU-EDE took off from Morningstar Airfield, Western Cape province, with the intention to return to the same airfield. 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.

The pilot reported that he conducted a pre-flight inspection of the aircraft, and no abnormalities were found. The aircraft had approximately 90 litres (L) of Avgas 100LL in the tanks. The pilot stated that he started the engine and, after it had warmed up, he taxied the aircraft to the threshold of Runway 20. At approximately 1030Z, he opened the throttle (increased the engine power) to 3 000 revolutions per minute (RPM) and commenced with the take-off run. The aircraft rotated and climbed to an altitude of 2 000 feet (ft), headed in a north-easterly direction. The aircraft cruised at a speed of 100 knots (kts).

After approximately 1 hour (hr), the aircraft returned to Morningstar Airfield. Upon reaching the airfield, the pilot checked the windsock and it indicated the presence of a slight right crosswind on Runway 20. Therefore, he decided to land on the opposite Runway 02, which is an upslope.

The flaps were set at 30° with the approach airspeed of 65 kts. Before initiating the landing flare at about 10 feet (ft) above the runway, the aircraft encountered a crosswind of 3.86 kts from the left. The pilot increased the engine power to initiate a go-around, but the engine did not respond as expected. Consequently, the aircraft landed hard on the runway and the pilot lost directional control during the landing roll. The aircraft veered off to the right and exited the runway. During the accident sequence, the nose gear strut collapsed and the propeller struck the ground. The pilot switched off the master switch after the aircraft had come to a stop; both the pilot and the passenger were not injured. Post-accident, the pilot examined the aircraft which revealed a delaminated right main landing gear strut due to the hard landing. The aircraft was substantially damaged.

The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 24°15´51'' South 028°13´30'' E, at an elevation of 112ft.

Figure 1: Aerial view of the Morningstar Airfield. (Source: Google Earth)

Figure 2: The side-view of the aircraft after it had stopped. (Source: Pilot)

Figure 3: The front view of the aircraft with the nose resting on the ground and the damaged propeller. (Source: Pilot)

Figure 4: The arrows indicate delamination on the right main landing gear strut. (Source: Pilot)

Aircraft Description (Source: Jabiru J430 Pilot's Operating Handbook [POH])

Extract from the POH: "The Jabiru J430 is an Australian light aircraft that is designed for touring. It is made of composite materials and has a foot high-winged, strut-braced monoplane with wing flaps, mass balanced rudder and elevator, and in-flight adjustable trim. The standard engine comprises a 120 horsepower (hp) Jabiru 3300 (air-cooled) horizontally opposed, six-cylinder engine. The J430 features a four-seat cabin that is 44 inches (in) wide, fully enclosed and ergonomically designed with three doors. It also has a tricycle undercarriage with steerable nose wheel and hand-operated in-line hydraulic disc brakes. The wing tanks and header tanks of the J430 hold 140 litres (L) of fuel overall, of which 135 litres (L) is usable. It has excellent crosswind handling performance with a maximum of 14 knots (kts)."

Meteorological Information

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

Wind Direction	160°	Wind Speed	6 kts	Visibility	10000m
Temperature	24° C	Cloud Cover	None	Cloud Base	None
Dew Point	13° C	QNH	Unknown		

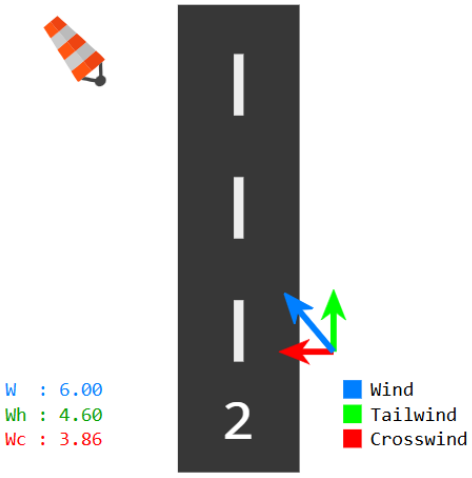
Jabiru J430 Crosswind Landing Procedure (Source: Jabiru J430 (POH))

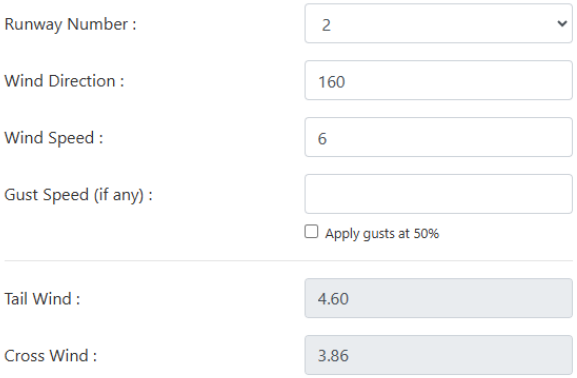
4.4.6. CROSSWIND LANDING

The limiting crosswind velocity of 14 knots has been demonstrated at FULL Flap. However, in strong crosswind conditions use the minimum flap consistent with the strip length available.

Use the Wing Low technique right through to touchdown and land on Mains first.

Crosswind Calculation





Based on the calculation above, this indicates that the pilot experienced a 4.60 tailwind and 3.86 crosswind upon landing. This was a direct contribution to the accident.

Findings

1. Personnel Information

1.1. The pilot had a Private Pilot Licence (PPL) that was initially issued by the Regulator (SACAA) on 16 March 2022. The licence was reissued on 25 March 2023 with an expiry date of 31 March 2025. The pilot had flown a total of 162.93 hours of which 22.6 hours were on the aircraft type.

1.2. The pilot had a Class 2 aviation medical certificate that was issued on 6 July 2020 with an expiry date of 31 July 2025 with no restrictions.

2. Aircraft Information

2.1. The aircraft was maintained by the SACAA-approved aircraft maintenance organisation (AMO). The latest maintenance inspection was certified on 7 March 2024 at 2 068.70 total airframe hours. The aircraft had accrued 64.2 hours since the last maintenance.

2.2. The aircraft was issued a Certificate of Release to Service (CRS) on 7 March 2024 at 2 068.70 airframe hours with an expiry date of 7 March 2025 or at 2 186.70 airframe hours, whichever occurs first.

2.3. The aircraft had a valid Authority-to-fly (ATF) Certificate that was initially issued on 27 May 2019. The latest ATF Certificate was issued on 20 March 2024 with an expiry date of 31 May 2025.

2.4. The aircraft's Certificate of Registration (C of R) was issued to the present owner on 15 June 2021.

2.5. According to the Jabiru J430 Operators Manual, the maximum allowable crosswind that the aircraft can withstand is 14 kts. The crosswind during the landing approach was 3.86 kts and the tailwind was 4.60 kts which increased the aircraft's landing speed. Consequently, the delay in engine response after opening the throttle and the sink rate resulted in a hard landing.

Probable Cause(s)

Unstable approach which resulted in the aircraft landing hard on Runway 02. Consequently, the pilot lost directional control of the aircraft, and it veered off to the right.

Contributing Factor(s)

1. Poor landing technique.

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 desktop inquiries 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.
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This report is issued by:

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