SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10446						
Classification	Accident	**Date**	21 April 2024		**Time**	1318Z	
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Nandoni Private Airstrip, Thohoyandou, Limpopo Province	Place of Intended Landing	Polokwane Civil Aerodrome, Limpopo Province				
Place of Occurrence	Nandoni Private Airstrip, Thohoyandou, Limpopo Province						
GPS Co-ordinates	Latitude	22°59'29" S	Longitude	030°32'53" E	Elevation	1 750ft	
Aircraft Information							
Registration	ZU-MJM						
Make; Model; S/N	Jabiru J430, (Serial Number: 513)						
Damage to Aircraft	Substantial	Total Aircraft Hours	881.1				
Pilot-in-command							
Licence Type	Private Pilot Licence (PPL)	Gender	Male	Age	21		
Licence Valid	Yes	Total Hours	125.6	Total Hours on Type	97.7		
Total Hours 30 Days	21.5	Total Flying on Type Past 90 Days	37.1				
People On-board	1+3	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On 21 April 2024 at 1318Z, a pilot and three passengers on-board a Jabiru J430 aircraft with registration ZU-MJM took off on a recreational flight from Nandoni private airstrip in Limpopo province to Polokwane Civil Aerodrome (FAPI) in the same province, with the intention to return to the departure airstrip. The flight was conducted under visual meteorological conditions by day and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended. Clear weather conditions prevailed at the time of the flight.

According to the pilot, a pre-flight inspection was conducted, and no anomalies were found. The aircraft had a total of 125 litres of fuel with an endurance of 3 hours. Before take-off, the pilot set the flaps to 10°, checked the circuit breakers to ensure that the battery was charging, and that the revolutions per minute (RPM) were steadily increasing. During the take-off phase from Runway 14, the pilot applied full power and the aircraft accelerated, however, he noticed that the indicated airspeed (IAS) remained at zero. The pilot immediately closed the throttle and applied the brakes. At that time, the aircraft had already used almost half of the runway length, and the remaining runway surface sloped downwards which made it hard for the pilot to bring the aircraft to a safe stop. As the pilot deduced that he is running out of runway surface, he steered the aircraft slightly to the right and exited the runway into the wetland to minimise damage to the aircraft. However, the aircraft was substantially damaged; it sustained damage to the propeller blades, right main gear strut and the right-wing tip. No person was injured.

Post-accident, the approved person (AP) noticed that a bug had lodged inside the pitot tube.

Figure 1: The aircraft after it came to a stop. (Source: Pilot)

Figures 2 and 3: Shows the damaged right gear strut (left) and wheel assembly (right). (Source: Pilot)

Pitot-static System Failures – Aircraft Owners and Pilots Association

(Source: https://www.aopa.org/news-and-media/all-news/2019/april/10/pitot-static-system-failures)

The airspeed indicator uses ram air from the pitot tube, compared with static air from the static vent(s) to display airspeed. A blocked pitot tube will only affect the airspeed indicator. Your airspeed will initially not increase as you accelerate down the runway.

Runway information
Runway is located: 22'59'00"S/30'32'06E
Runway Length: 1200M
Runway Surface: Gravel RWY.
Runway Orientation: 14/32

Take-off & Landing Distances (Source: Flight Manual)

Take-off safety speed is 1.3 Vsi 65 KIAS Landing Approach speed (Full Flap) 65 KIAS. The unfactored, sea-level take-off distance to 50' at NIL wind or slope, on a short dry grass surface, is 400 metres. The sea-level take-off strip length exceeds the landing strip length. Take-off and landing distance is, therefore, 400 metres times 1.3 = 520 metres. This distance must be increased by a distance increment of 115 metres for each one thousand feet (1000') of pressure altitude.

When the take-off was aborted, the aircraft needed 750m to stop safely; the available runway was 600m.

Findings

Personnel Information

1. The pilot was initially issued a Private Pilot Licence (PPL) by the Regulator (SACAA) on 18 December 2021. The licence was renewed on 9 December 2022 with an expiry date of 31 December 2024. The pilot had flown a total of 125.6 hours of which 97.7 hours were on the aircraft type. The aircraft type was endorsed on the pilot's licence and logbook.

2. The pilot was issued a Class 2 aviation medical certificate on 1 April 2021 with an expiry date of 1 April 2026 with no medical waiver. The pilot was properly licensed to conduct the flight and was medically fit in accordance with Part 61 of the CAR 2011.

Aircraft Information

3. The last mandatory periodic inspection (MPI) that was conducted on the aircraft prior to the accident flight was on 3 August 2023 at 6 164.5 airframe hours. The aircraft had a total of 6 194.4 hours at the time of the accident, which meant that it accrued 29.9 hours since the last MPI.

4. The aircraft had a valid Authority to Fly (ATF) that was initially issued on 22 February 2020. The ATF was reissued on 12 March 2024 with an expiry date of 28 February 2025.

5. The aircraft's Certificate of Release to Service (CRS) was issued on 15 March 2024 with an expiry date of 28 February 2025 or at 962.5 hours, whichever comes first.

6. The Certificate of Registration (C of R) was issued to the current owner on 27 February 2024.

7. During the take-off run when the aircraft was halfway through the runway, the pilot noticed that the airspeed indicator had remained at zero. The misreading on the gauge was caused by a bug that was stuck inside the pitot tube. The take-off was aborted late, and the remaining runway was insufficient to safely bring the aircraft to a stop.

Probable Cause(s)

The pilot aborted take-off due to a bug that had lodged in the pitot tube and, as a result, caused the airspeed readings to remain at zero. The pilot could not bring the aircraft to a safe stop on the remaining runway and he decided to exit to the right to minimise damage.

Contributing Factor(s)

Inadequate or no pre-flight inspection.

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.
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This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa