



LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL
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Reference Number	CA18/2/3/10285						
Classification	Accident	Date	15 April 2023	Time	1417Z		
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Parys Aerodrome (FAPY), Free State Province		Place of Intended Landing	Parys Aerodrome (FAPY), Free State Province			
Place of Occurrence	Open field near Parys Aerodrome (FAPY), Free State Province						
GPS Co-ordinates	Latitude	26° 53' 51.8" S	Longitude	027° 30' 01.91" E	Elevation	4646 ft	
Aircraft Information							
Registration	ZU-WAS						
Make; Model; S/N	PZL "Warszawa-Okecie" PZL-104 Wilga 35 (Serial Number: KA86229)						
Damage to Aircraft	Substantial		Total Aircraft Hours	1275.12			
Pilot-in-command							
Licence Type	Private Pilot Licence (PPL)		Gender	Male	Age	32	
Licence Valid	Yes	Total Hours	2202.48		Total Hours on Type	17.30	
Total Hours 30 Days	39.42		Total Flying on Type Past 90 Days	8.12			
People On-board	1+0	Injuries	0	Fatalities	0	Other (on ground)	0
What Happened							
<p>On 15 April 2023, a pilot on-board a PZL "Warszawa-Okecie" aircraft with registration ZU-WAS took off on a private flight from Parys Aerodrome (FAPY) in the Free State province with the intention to land at the same aerodrome. 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.</p> <p>The pilot reported that he conducted a pre-flight inspection and found no anomalies. He then taxied the aircraft to Runway 24 for take-off. The aircraft took off at 1415Z, turned left and climbed. Shortly thereafter, the engine experienced a partial power loss and the revolutions per minute (RPM) dropped from 2000 to 1000. As a result, the aircraft could not maintain height. The pilot elected to execute a precautionary landing on an open field ahead of the flight path. During the landing roll, the left main gear rolled over a ditch which caused it to bend; the left wing impacted the ground, and the propeller struck the ground before the aircraft came to a stop. The pilot switched off the master switch and disembarked from the aircraft unassisted.</p> <p>The aircraft sustained damage to the left wing, both main gears, propeller blades, engine cowling and elevator.</p>							



Figure 1: Parys Aerodrome and the accident site. The white arrow shows direction of take-off. (Source: Google Earth)



Figure 2: The aircraft at the accident site. (Source: Operator)



Figure 3: The left view showing the damaged wing. (Source: Operator)

Post-accident:

- During the post-accident interview, the pilot stated that the cause of the accident was carburettor icing.
- The weather information below was obtained from the South African Weather Service (SAWS) issued for FAPS on the day and time of the accident. The weather station at FAPS is situated 50 kilometres (km) north-west of FAPY, which is the closest weather station.

Wind Direction	190°	Wind Speed	3kt	Visibility	Unknown
Temperature	24°C	Cloud Cover	No observation	Cloud Base	No observation
Dew Point	2°C	QNH	1025		

- The temperature was 24°C with the dew point value of 2°C. According to the Icing Probability Chart: temperature (24°C) minus dew point (2°C) equals dew point depression which was determined to be 22°C with the relative humidity at 23%. According to the carburettor Icing Probability Chart, the values indicate a light icing probability either at cruise power or descent power. The aircraft had a partial power loss about 2 minutes after take-off.
- On 22 April 2023, the aircraft's propeller was replaced, and the engine was started thereafter. It operated efficiently.
- Managing Partial Power Loss After Take-off (Source: www.aerobillity.com)

Some conditions reported as causing partial power loss after take-off are fuel starvation, spark plug fouling, carburettor icing and pre-ignition conditions. In many cases, these conditions may have been identified throughout the pre-take-off and on-take-off check phases of the flight.

Findings

1. The pilot was initially issued a Private Pilot Licence (PPL) on 27 July 2018. His renewed licence was issued on 17 July 2022 with an expiry date of 31 July 2023. His Class 2 aviation medical certificate was issued on 3 July 2018 with an expiry date of 31 July 2023 with no restrictions.

2. The last annual inspection on the aircraft was certified on 6 September 2022 at 1 256.7 total airframe hours. The aircraft had accumulated 1 275.2 hours at the time of the accident, which meant that it was flown a further 18.5 hours after the inspection.
3. Fine weather conditions prevailed at the time of the flight. The weather had no bearing to this accident.
4. The aircraft had an Authority to Fly (ATF) certificate which was issued by the Regulator on 27 September 2022 with an expiry date of 30 September 2023.
5. The Certificate of Registration (C of R) was issued to the present owner on 9 April 2019.
6. The pilot stated that shortly after take-off, the engine had a partial power loss, and the RPM reduced from 2000 to 1000. Thereafter, the aircraft could not maintain altitude. The pilot elected to execute a precautionary landing on an open field ahead of his flight path. During the landing roll, the left main wheel rolled over a ditch and bent, and thus, the left wing impacted the ground, and the propeller struck the ground before the aircraft stopped.
7. The pilot stated that the cause of the accident was carburettor icing. According to the carburettor Icing Probability Chart, there was a light icing probability at cruise power or descent power. The aircraft had partial power loss shortly after take-off.
8. After the accident, the engine was inspected, and it started and operated without difficulties. There were no faults found during the engine inspection.
9. The cause of partial power loss could not be determined.

Probable Cause

Unsuccessful precautionary landing after an in-flight partial engine power loss. The cause of the partial engine power loss could not be determined.

Contributing Factor(s)

None.

Safety Action(s)

None.

Safety Message

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

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