SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10431						
Classification	Accident	**Date**	10 March 2024		**Time**	0831Z	
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Springbok Aerodrome (FASB), Northern Cape Province	Place of Intended Landing	Morning Star Aerodrome, Western Cape Province				
Place of Occurrence	Elandsbaai Nature Reserve, Western Cape Province						
GPS Co-ordinates	Latitude	32°16'18.70" S	Longitude	018°23'35.99" E	Elevation	450 ft	
Aircraft Information							
Registration	ZU-URI						
Make; Model; S/N	Jabiru J430 (Serial Number: 995)						
Damage to Aircraft	Substantial	Total Aircraft Hours	57.9				
Pilot-in-command							
Licence Type	Commercial Pilot Licence (CPL) Aeroplane	Gender	Male	Age	80		
Licence Valid	Yes	Total Hours	1802.2	Total Hours on Type	49.7		
Total Hours 30 Days	5.9	Total Flying on Type Past 90 Days	11.4				
People On-board	1+1	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Sunday morning, 10 March 2024, a pilot and a passenger on-board a Jabiru J430 aircraft with registration ZU-URI took off on a private flight from Springbok Aerodrome (FASB) in the Northern Cape province to Morning Star Aerodrome in the Western 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 stated that the aircraft had 5 hours fuel endurance. They flew for 2 hours and 40 minutes and landed at Lamberts Bay, Western Cape province, to take a break. At 0810Z, they took off from Lamberts Bay to Morningstar Aerodrome. Whilst flying above the restricted airspace near Air Force Base Langebaanweg (must be below 1500 feet above ground level [AGL] in that area), the pilot used the carburetor heat several times to prevent icing and, therefore, did not notice when the engine ran rough and as it lost power. When he became aware of engine power loss, he stated that he switched on the fuel pump and turned the magneto switches on and off but could not regain engine power. He then selected an open field on a farm near Elands Bay in the West Coast to perform a precautionary landing. The area he selected was covered in dense vegetation (Figure 1). During landing, the aircraft sustained substantial damage to the landing gear and propellers. The pilot and the passenger

were not harmed. The aircraft maintenance organisation (AMO) that recovered the aircraft drained 30 litres of fuel from the fuel tanks.

After the accident, the AMO placed the engine on a test bench, and it started and achieved all the power settings without complications.

Figure 1: The aircraft came to rest on a bushy area. (Source: Operator)

Figure 2: The aircraft was on track to Morning Star. (Source: Google Earth)

The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS), recorded at Langebaan Airport on 10 March 2024 at 0810Z. Langebaan Airport is located 47 nautical miles from the accident site.

Wind Direction	200°	Wind Speed	08kt	Visibility	9999m
Temperature	23°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	16°C	QNH	1016hPa		

Figure 3: Weather report. (Source: SAWS)

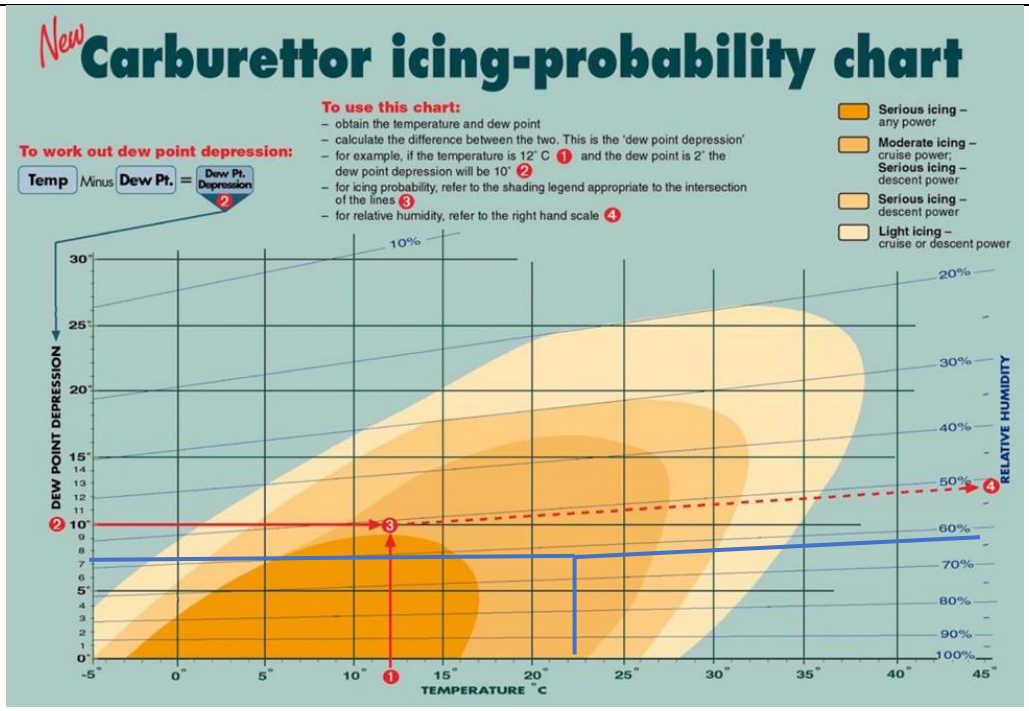

Figure 4: Carburetor icing chart. (Source: https://www.dmi.dk/fileadmin)

The dew point depreciation is calculated at 7°C and temperature at 23°C; the relative humidity is calculated at 64%. A 64% humidity will result in moderate icing on cruise power and serious icing on decent power.

Initial AMO Findings

On initial assessment the following aircraft damage was found:

- *Nose leg and main undercarriage was damaged and broken.*
- *Quite a substantial amount of fuel had leaked out of the wing tanks.*
- *Fuel was drained from wing tank including the header tank.*
- *Approximately 30 litres of fuel was recovered.*
- *No damages to the propeller.*
- *Main fuel tap in cabin was on off position.*
- *An inspection of the Carburettor float bowl was conducted, no evidence of water or dirt found.*
- *The engine was removed and placed on a test bench.*
- *The engine started immediately, and power checks were conducted.*
- *The engine achieved all the power settings.*
- *Blow byes was then performed.*
  1)72/80 2)74/80 3)72/80
  4)74/80 5)74/80 6)76/80

Findings

1. The pilot was last issued a Commercial Pilot Licence (CPL) on 16 March 2023 with an expiry date of 31 March 2024. The pilot's Class 1 medical certificate was issued on 31 October 2023 with an expiry date of 30 April 2024 with a stipulation to wear corrective lenses.

2. The aircraft's last 100-hour inspection was conducted on 19 September 2023 at 37.6 airframe hours, after which a Certificate of Release to Service (CRS) was issued with an expiry date of 19 September 2024 or at 137.6 airframe hours, whichever comes first.

3. The Authority to Fly (ATF) was first issued on 31 October 2022. The ATF renewal was issued on 31 October 2023 with an expiry date of 30 October 2024.

4. The Certificate of Registration was issued on 1 August 2022.

5. The probability chart (Figure 4) indicated that there was a possibility of icing as the temperature was 23°C and the dew point was 16°C. The relative humidity was 64%. The chart plot indicated moderate icing in cruise power and serious icing in descent power.

6. Approximately 30 litres of fuel was recovered from the aircraft's wing tanks. The engine was placed on a test bench; it started immediately, achieving all power settings.

Probable Cause(s)

The engine carburetor experienced moderate icing before it lost power and failed. Attempts to restore power resulted in an unsuccessful precautionary landing and damage to the aircraft.

Contributing Factor(s)

Poor or no flight planning; the icing probability was not calculated to determine if precautionary measures should be taken.

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