LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/3/2/1543				
Classification	Serious Incident	**Date**	11 April 2026	**Time**	0835Z
Type of Operation	Private (Part 94)				
Location					
Place of Departure	Parys Aerodrome (FAPY), Free State Province	Place of Intended Landing	Krugersdorp Aerodrome (FAKR), Gauteng Province		
Place of Occurrence	Approximately 8nm south of Krugersdorp Aerodrome FAKR, near Mohlakeng, Randfontein, Gauteng Province				
GPS Co-ordinates	Latitude	26° 13' 16.53" S	Longitude	027° 41' 22.47" E	Elevation	5 535 ft
Aircraft Information					
Registration	ZU-JOL				
Make; Model; S/N	Jora (Serial Number: C-138)				
Damage to Aircraft	Substantial	Total Aircraft Hours	1 054.8		
Pilot-in-command					
Licence Type	Private Pilot Licence (PPL)	Gender	Male	Age	57
Licence Valid	Yes	Total Hours	254.3	Total Hours on Type	24.1
Total Hours 30 Days	2.3	Total Flying on Type Past 90 Days	7.4		
People On-board	1 + 0	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Saturday morning, 11 April 2026, a pilot on-board a Jora C-138 aircraft registered ZU-JOL was engaged in a private flight from Parys Aerodrome (FAPY) in Free State province to Krugersdorp Aerodrome (FAKR) in Gauteng province when the serious incident occurred. The flight was conducted under visual meteorological conditions (VMC) and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011, as amended.

According to the pilot, he took off from FAKR to FAPY at 0415Z. Later, at approximately 0800Z, he departed from FAPY to FAKR, where he intended to conduct a full-stop landing. Approximately 35 minutes into the flight and in descent phase, nearly 9 nautical miles (nm) from FAKR whilst overhead Mohlakeng in Randfontein at a cruise altitude of 6 200 feet (ft) above mean sea level (AMSL), the pilot heard an abnormal engine sound. Soon after, the engine began to run rough; this was followed by a significant loss of engine power. Subsequently, the aircraft lost height. After deducing that the engine power could not be restored, the pilot assessed the area and identified a field between Regional Road 28 (R28) and Mohlakeng residential area on which to conduct a forced landing. The aircraft touched down short of the intended landing area and struck some trees along its path.

The pilot was not injured; the aircraft sustained damage to the nose landing gear and propeller. The aircraft was recovered to the pilot's hangar at FAKR on the same day.

Figure 1: The approximate location of the serious incident site. (Source: Google Earth)

Figure 2: The aircraft after the serious incident site. (Source: Pilot)

Figure 3: The rear view of the aircraft at the serious incident site. (Source: Pilot)

Post-serious Incident Inspection

The engine inspection and test were conducted and no anomalies were found. The engine ran satisfactorily and met all operational parameters. The fuel system and fuel flow tests were also conducted and no anomalies were identified.

Meteorological Conditions

The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS) for Lanseria International Airport (FALA) on 11 April 2026 at 0830Z. The serious incident site was located 20nm south-west of FALA.

FALA 110830Z 36005KT 300V030 CAVOK 23/13 Q1027 NOSIG=

Wind Direction	360°	Wind Speed	5 kt	Visibility	10 km
Temperature	23°C	Cloud Cover	CAVOK	Cloud Base	CAVOK
Dew Point	13°C	QNH	1027 hPa		

According to the carburettor icing probability chart below, the recorded conditions showed a dew point depression of 10°C with an ambient temperature of 23°C and a dew point of 13°C. An estimated relative humidity of about 55% was recorded. A likelihood of carburettor icing was considered a serious probability at descent power settings. Additionally, the aircraft was in descent phase of flight in preparation for landing at FAKR. Typically, this involved lower engine power settings which further increased the potential for ice formation.

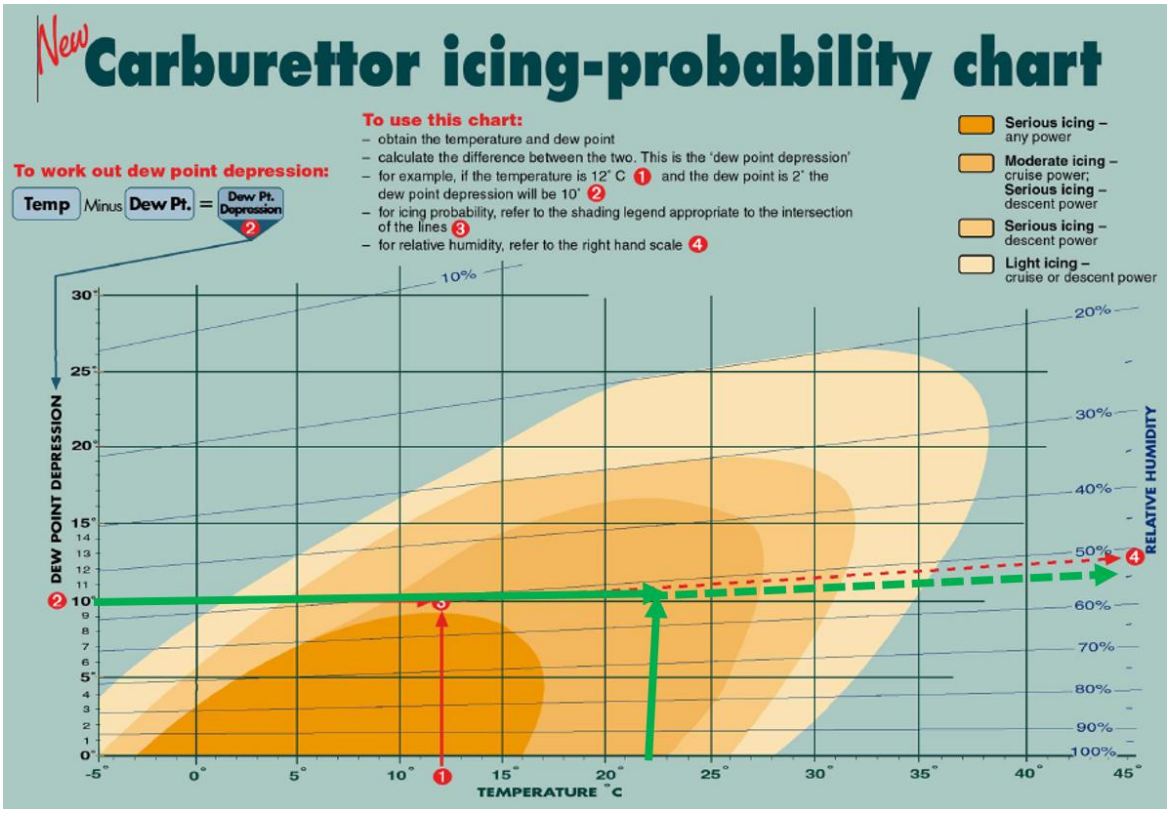

Figure 4: Carburettor icing-probability chart. (Source: https://alaskafloatratings.com/float-flying-journal/what-is-carburetor-icing/)

Carburettor Icing (Source: FAA-H-8083-25B)

One disadvantage of the float-type carburettor is its icing tendency. Carburettor ice occurs due to the effect of fuel vaporisation and the decrease in air pressure in the venturi, which causes a sharp temperature drop in the carburettor. If water vapor in the air condenses when the carburettor temperature is at or below freezing, ice may form on internal surfaces of the carburettor, including the throttle valve. The reduced air pressure, as well as the vaporisation of fuel, contributes to the temperature decrease in the carburettor. Ice generally forms in the vicinity of the throttle valve and in the venturi throat. This restricts the flow of the fuel/air mixture and reduces power. If enough ice builds up, the engine may cease to operate. Carburettor ice is most likely to occur when temperatures are below 70 degrees Fahrenheit (°F) or 21 degrees Celsius (°C) and the relative humidity is above 80 percent. Due to the sudden cooling that takes place in the carburettor, icing can occur even with temperatures as high as 100 °F (38 °C) and humidity as low as 50 percent. This temperature drop

can be as much as 60 to 70 °F (15 to 21 °C). Therefore, at an outside air temperature of 100 °F (37 °C), a temperature drop of 70 °F (21 °C) results in an air temperature in the carburettor of 30 °F (-1 °C).

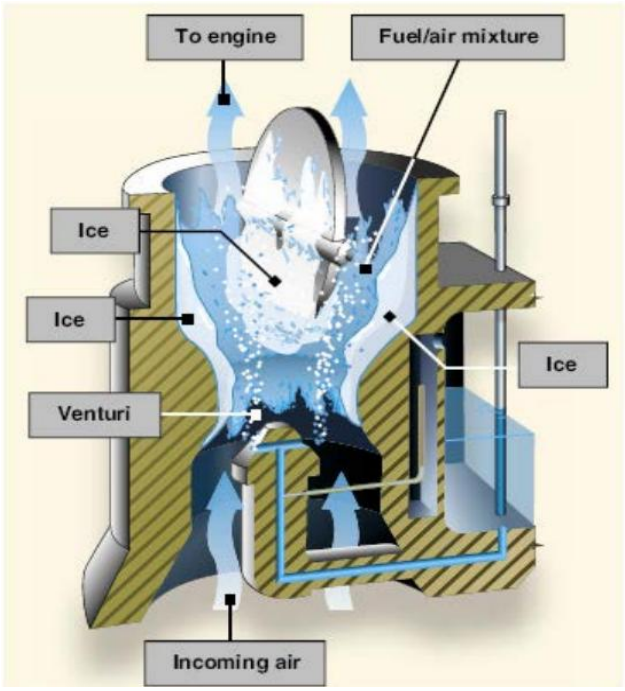

Figure 5: The formation of carburettor ice may reduce or block fuel/air flow to the engine. (Source: highsierrapilots.club/carburetor-icing/)

The first indication of carburettor icing in an aircraft with a fixed-pitch propeller is a decrease in engine revolutions per minute (rpm), which may be followed by engine roughness. In an aircraft with a constant-speed propeller, carburettor icing is usually indicated by a decrease in manifold pressure, but no reduction in rpm. Propeller pitch is automatically adjusted to compensate for loss of power. Thus, a constant rpm is maintained. Although carburettor ice can occur during any phase of flight, it is particularly dangerous when using reduced power during a descent. Under certain conditions, carburettor ice could build unnoticed until power is added. To combat the effects of carburettor ice, engines with float-type carburettors employ a carburettor heat system.

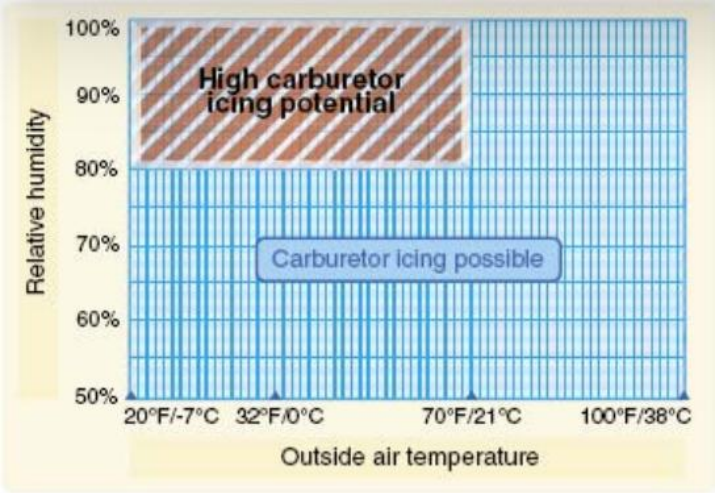

Figure 6: Relative humidity and outside temperature chart for carburettor icing formation probability (Source: http://avstop.com/AC/weight_shift_control/4-10.html)

Carburettor Heat

Carburettor heat is an anti-icing system that preheats the air before it reaches the carburettor and is intended to keep the fuel/air mixture above the freezing temperature to prevent the formation of carburettor ice. Carburettor heat can be used to melt ice that has already formed in the carburettor if the accumulation is not too great but using carburettor heat as a preventative measure is the better option. Additionally, the use of carburettor heat as an alternate air source can be used if the intake filter clogs, such as in sudden or unexpected airframe icing conditions. The carburettor heat should be checked during the engine runup. When using carburettor heat, follow the manufacturer's recommendations. When conditions are conducive to carburettor icing during flight, periodic checks should be made to detect its presence. If detected, full carburettor heat should be applied immediately, and it should be left in the ON position until the pilot is certain all the ice has been removed. If ice is present, applying partial heat or leaving heat on for an insufficient time might aggravate the situation. In extreme cases of carburettor icing, even after the ice has been removed, full carburettor heat should be used to prevent further ice formation. If installed, a carburettor temperature gauge is useful in determining when to use carburettor heat.

Findings

1. Pilot

1.1 The pilot had a Private Pilot Licence (PPL) that was initially issued by the Regulator (SACAA) on 4 April 2014. The latest PPL was renewed on 14 July 2024 with an expiry date of 31 July 2026.

1.2 The pilot had a Class 2 aviation medical certificate that was issued on 17 June 2024 with an expiry date of 30 June 2026. The aircraft type was endorsed in his licence.

1.3 The pilot had a total of 254.3 hours of which 24.1 hours were acquired on the aircraft type.

2. Aircraft Information

2.1 The last annual inspection of the aircraft was conducted and certified on 18 October 2025 at 1 018.7 total airframe hours after which a Certificate of Release to Service (CRS) was issued with an expiry date of 17 October 2026 or at 1 118.7 airframe hours, whichever comes first. The aircraft had a total of 1 054.8 airframe hours at the time of the serious incident. It had accumulated a total of 36.1 airframe hours since the last annual inspection.

2.2 The aircraft had a valid Authority-to-Fly (ATF) Certificate that was issued on 13 November 2025 with an expiry date of 31 March 2027.

2.3 The aircraft Certificate of Registration (C of R) was issued to the present owner on 11 April 2025.

2.4 The aircraft was maintained by an approved person (AP) with an AP Certificate that was issued by the Regulator on 17 February 2025 and valid until 16 August 2027.

3. Environment

3.1. The weather conditions were a contributory factor to this serious incident.

4. Mission

4.1. During the cruise phase of flight at approximately 6 200ft above mean sea level (AMSL), the aircraft engine ran rough, followed by a significant loss of engine power. The symptoms were consistent with carburettor icing.

4.2. The prevailing meteorological conditions at the time of the serious incident were conducive to the formation of carburettor icing with a relative humidity of approximately 55% at cruise power setting.

4.3. The pilot attempted to restore engine power; however, he was unsuccessful. Subsequently, he elected to close the throttle after which the engine stopped completely before the aircraft touched down during the forced landing.

4.4. The post-serious incident inspection of the engine and fuel system did not reveal any anomalies that could have contributed to the loss of engine power.

Probable Cause(s)

Loss of engine power during the cruise phase in conditions that were conducive to carburettor ice formation resulted in an unsuccessful forced landing.

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 desktop 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