



LIMITED SERIOUS INCIDENT INVESTIGATION REPORT
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Reference Number		CA18/3/2/1373					
Classification	Serious Incident	Date	20 September 2021	Time	0540Z		
Type of Operation		Private (Part 94)					
Location							
Place of Departure		Hoedspruit Civil Aerodrome (FAHT), Limpopo Province		Place of Intended Landing		Hoedspruit Civil Aerodrome (FAHT), Limpopo Province	
Place of Occurrence		Southern Cross private school rugby field, Limpopo Province					
GPS Co-ordinates	Latitude	S24° 21'.20"	Longitude	E30°57'.08"	Elevation	1712 feet	
Aircraft Information							
Registration		ZU-CZY					
Model/Make		Bantam B22J (Serial No: 03-0222)					
Damage to Aircraft		None		Total Aircraft Hours	821.3		
Pilot-in-command							
Licence Valid		Yes	Gender	Male	Age	31	
Licence Type		National Pilot Licence (NPL)					
Total Hours on Type		1339.3		Total Flying Hours	1866.8		
People On-board		1 + 0	Injuries	0	Fatalities	0	
Other (On Ground)		0					
What Happened							
<p>On Monday morning, 20 September 2021, a pilot on-board a Bantam B22J high-wing monoplane aircraft with registration ZU-CZY was conducting circuits at Hoedspruit Civil Aerodrome (FAHT) in Limpopo province when the incident occurred. Prior to the flight, the pilot had conducted a pre-flight inspection on the aircraft and nothing abnormal was noted. The aircraft had a total of 30 litres of 95 unleaded fuel in the tanks, which was free of contaminants. The pilot boarded the aircraft and put on the shoulder harness. He later started the engine and taxied the aircraft to Runway 35 for departure. The pilot reported that prior to departing FAHT, the weather was fine with light and variable surface wind at 5 knots (kt) and temperature at 25°C. The flight was conducted under Visual Meteorological Conditions (VMC) by day. The pilot selected first notch of flaps and opened the throttle to 2900 revolutions per minute (RPM). The aircraft took off and climbed to 2500 feet (ft), travelling at 55 knots indicated airspeed (KIAS). The pilot performed three uneventful touch-and-go landings on Runway 35.</p>							

During the fourth circuit whilst on final approach for Runway 35 at about 500ft above ground level (AGL), the engine stopped. The pilot glided the aircraft towards the Southern Cross Private School rugby field approximately 500 metres (m) in line with Runway 35 threshold and executed a successful forced landing. The aircraft sustained no damages, and the pilot was not injured. The pilot switched off the electrics before disembarking the aircraft. According to the pilot, the flight lasted about 0.6 hours. The aircraft was powered by a Jabiru 2200A four-cylinder four-stroke horizontally opposed air-cooled engine with serial No: 22A1489. The engine generated 80 horsepower (hp) at 3.300 RPM, driving a fixed-pitch wooden propeller.

Post-incident interview with the pilot revealed that there was nothing abnormal during the first three circuits. However, during the fourth circuit, the engine stopped on approach for Runway 35. The pilot stated that before the engine stoppage, the engine RPM dropped from 2600 to 2400 RPM. In less than 3 seconds the engine RPM indication went back to 2600 with no throttle inputs from the pilot. To the pilot's surprise, the engine stopped after about 5 seconds. The pilot reported that the engine parameters such as the fuel flow, the manifold pressure, the oil temperature, the oil pressure and the cylinders head temperature remained within the recommended operating limits in accordance with (IAW) the engine maintenance manual (EMM), document No. JEM0005-5, dated 30 May 2020, page serial No: 14 of 74 before the engine stopped.



Figure 1: The aircraft on the school rugby field. (Source: Operator)

The aircraft was recovered to the South African Civil Aviation Authority (SACAA) approved aircraft maintenance organisation (AMO) in FAHT where it was examined by the approved person (AP). No evidence of oil or fuel leak was noted on any of the fuel and oil system components. The fuel tank had about 27 litres of fuel remaining. Fuel was observed in the fuel line, fuel filter and in the carburettor bowl. Fuel was of the correct grade (95 Octane unleaded) and green in colour. The security of the spark plugs on the engine, leads and electrical connections were checked and found satisfactory.

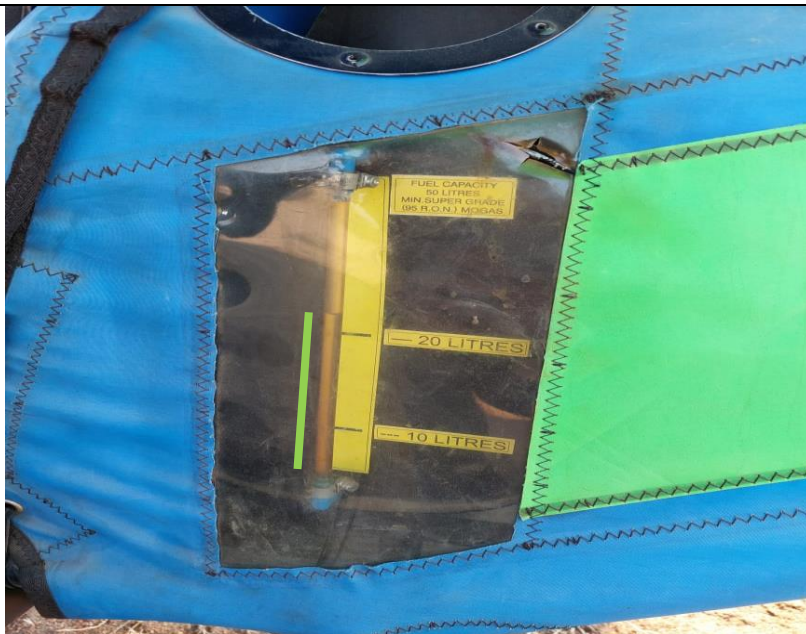


Figure 2: The fuel tank on the aircraft with fuel level visible. (Source: Operator)



Figure 3: 95 Octane unleaded fuel found in the carburettor bowl. (Source: Operator)

On Tuesday, 21 September 2021, the aircraft was towed out of the hangar to the run-up bay where it was prepared for an engine run-up test. No fuel was added. According to the AP, before the engine was started, cylinder compression and suction was noted on all cylinders while the engine was rotated by hand. The engine started without fault and was operated at idle speed to allow it to warm-up. The engine was later operated at high power settings, that is — the take-off power, cruise power, and power for final approach. After about 20 minutes during the test run, the engine stopped with no warnings or abnormalities observed. The engine carburettor was examined and full movement of the throttle on the carburettor was obtained from the corresponding full movement of the throttle lever in the cockpit.

The engine was removed from the aircraft and transported to the manufacturer's (Jabiru) South Africa (SA) agent, situated in George Airport (FAGG) in the Western Cape Province for further engineering investigation.

A technical report dated 4 October 2021 indicated that the engine, a Jabiru 2200A reciprocating engine with serial No: 22A1489, was placed on a test bench where after it was subjected to a test run. The engine was operated at different RPM's settings IAW the phases of flight, and no abnormalities were noted. The engine met all parameters IAW the EMM issue 1 dated 26 July 2012, page serial No: 18 of 94.

Examination of the pilot's file kept at the SACAA indicated that the pilot was correctly licensed and fit to undertake the flight on the day of the incident. The pilot had a National Pilot Licence (NPL) and had an aircraft type endorsement on his licence. The pilot had a valid Class 2 aviation medical certificate issued on 15 September 2020 with an expiry date of 15 September 2025.

Post-accident examination of the aircraft maintenance records and other documentation revealed nothing out of the ordinary and showed that the aircraft was certificated, equipped and maintained in accordance with existing regulations and approved procedures.

Examination of the aircraft's flight folio indicated no open or differed maintenance items listed before the flight. According to the aircraft maintenance records, on 22 June 2021, a Jabiru SA agent situated in FAGG carried out a 2000-hour time between overhaul (TBO) inspection on the engine at 1973.0 hours and 820.1 airframe hours IAW the Engine Overhaul Manual (EOM), document No. JEM0001-12, dated 25 May 2021.

The engine and a two-blade P-prop type propeller, serial No: 3312FEG6 were fitted on the aircraft by the SACAA approved AP in FAHT on 9 July 2021 (Job card No: 2021.07.02) and the aircraft Certificate of Release to Service was issued on 9 July 2021.

The serious incident occurred on 20 September 2021 at 821.3 airframe hours, an indication that the aircraft had flown 1.2 hours since the engine TBO was carried out.

Technical report summary:

The engine, when we ran it, started perfectly. No abnormalities were found, and no problem/s were identified.

Shadow Lite CC t/a Jabiru Aircraft



<p>Probable cause/s:</p> <p>The pilot executed a successful forced landing on a school rugby field after experiencing an undetermined engine stoppage in-flight.</p>
<p>Safety Action/s</p> <p>None.</p>
<p>Safety Message and/or Safety Recommendation/s</p> <p>None.</p>
<p>Purpose of the Investigation</p> <p><i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, 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.</i></p>
<p>About this Report</p> <p><i>Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no 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 brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information 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 accident.</i></p> <p><i>This report provides an opportunity to share safety message/s in the absence of an investigation.</i></p> <p><i>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.</i></p>
<p>Disclaimer</p> <p><i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i></p>

This report is issued by:

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