

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/3/2/1444					
Classification	Serious Incident	Date	30 March 2024	Time	1410Z	
Type of Operation	Private (Part 94)					
Location						
Place of Departure	Wings Park Airfield, Eastern Cape Province		Place of Intended Landing	George Airport (FAGG), Western Cape Province		
Place of Occurrence	On a dirt road, north of the N2 National Road and south of Rondevlei between the towns of Wilderness and Sedgfield in the Western Cape province					
GPS Co-ordinates	Latitude	33°59'55.8" S	Longitude	22°42'32.3" E	Elevation	235ft
Aircraft Information						
Registration	ZU-MXK					
Make; Model; S/N	Kitplanes for Africa; Explorer UL-600 (Serial Number: 022-D-23 EXUL)					
Damage to Aircraft	Minor		Total Airframe Hours	17		
Pilot-in-command						
License Type	Commercial Pilot Licence (CPL)		Gender	Male		Age 31
Licence Valid	Yes	Total Hours	1 308.4		Total Hours on Type	12
Total Hours 30 Days	9		Total Flying Hours on Type Past 90 Days	9		
People On-board	1 + 0	Injuries	0	Fatalities	0	Other (On the ground) 0
What Happened						
<p>On Saturday morning, 30 March 2024, a pilot on-board the Explorer UL-600 aircraft with registration ZU-MXK was conducting a ferry flight from Virginia Aerodrome (FAVG) in KwaZulu-Natal province with the intention to land at Wings Park Airfield in East London in the Eastern Cape province to refuel before proceeding to George Airport (FAGG) in the Western Cape province. A flight plan was filed with Cape Town International Airport (FACT). 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 stated that before departing FAVG, he conducted a pre-flight inspection on the aircraft, and no anomalies were found. The flight folio page serial number 60801 showed that 75 litres (l) of Unleaded 95 Octane fuel was uplifted to a total of 107 litres (l) in the fuel tanks, which was full capacity and equated to 5 hours of endurance. At approximately 0730Z, the aircraft departed FAVG. The fuel consumption was calculated by the pilot to be between 18 and 20l per hour (p/h) and the manifold air pressure (MAP) was fluctuating between 29 and 31 inches, dependent on different power settings. The flight segments to Wings Park Airfield were uneventful, and the aircraft landed at about 1000Z. The calculated flight time was two-and-half (2½) hours. The pilot rested for a while before proceeding to FAGG.</p>						

On the same day at around 1100Z, the pilot returned to the aircraft and performed another inspection. There is no evidence of the pilot uplifting additional fuel at Wings Park Airfield. At around 1130Z, the pilot started the engine and taxied the aircraft to the threshold of Runway 27. Shortly after, the pilot opened the throttle to 5 700 revolutions per minute (RPM) and commenced with the take-off run. The aircraft rotated and climbed to 2 500 feet (ft). The pilot retarded the throttle to 5 000 RPM, cruising at an airspeed of 95 knots. After about 3 hours of flight time and after flying over Rondevlei Dam in Knysna, Western Cape province, the engine ran rough. The pilot suspected that the header tank red warning light was faulty. He then broadcasted a MAYDAY distress call on Cape Town Information very high frequency (VHF) 124.8 Megahertz (MHz). After making the MAYDAY call, he spotted a dirt road on which to conduct a forced landing. However, the engine stopped after a few seconds and the pilot glided the aircraft to the identified dirt road near Rondevlei Dam and performed a forced landing. The nose wheel entered a ditch during the landing roll which resulted in the propeller blades impacting the ground. The pilot brought the aircraft to a stop on the side of the dirt road. The aircraft sustained minor damage, and the pilot was not injured.

The serious incident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 33°59'55.8" South 22°42'32.3" East, at an elevation of 235 feet (ft).



Figure 1: The approximate flight path. (Source: Pilot)



Figure 2: The aircraft after it had landed. (Source: Pilot)

Meteorological Information

The meteorological aerodrome report (METAR) for George Airport (FAGG) on 30 March 2024 at 1400Z was obtained from the South African Weather Service (SAWS) aviation website: www.aviation.weathersa.co.za.

FAGG 301400Z 11010KT CAVOK 24/16 Q1013=

Wind Direction	110°	Wind Speed	10 knots	Visibility	9999 m
Temperature	24°C	Cloud Cover	Nil	Cloud Base	CAVOK
Dew Point	16°C	QNH	1013hPa		

Aircraft

The aircraft is powered by a Rotax 912 ULS-ST turbocharged engine with serial number 10003117 and is rated at 135 horsepower (hp). The aircraft had an electronic flight instrument system (EFIS). According to the Pilot's Operating Handbook (POH), the aircraft's fuel tank capacity is 107l of which 7l is unusable. The average fuel consumption, in accordance with the POH, is 18l p/h and the endurance is 5 hours.

What was found:

Post-incident examination of the aircraft indicated no evidence of fuel leaks. The aircraft fuel caps were intact, and the fuel tanks were empty.

The investigation established that the aircraft was not refuelled before departing Wings Park Airfield in East London on 30 March 2024. The pilot reported that the morning flight from FAVG to Wings Park Airfield was 2½ hours. The in-flight mishap occurred after three (3) hours of flight time en route to FAGG. The fuel consumption on the day was calculated at an estimated hourly fuel burn of 18l ph. (Source: POH)

A calculated fuel consumption by the investigation team:

Date	From	To	Flight duration	Fuel on-board	Fuel consumed
30/3/2024	FAVG	Wings Park Airfield	2 hours + 30 min	107l	45l
30/3/2024	Wings Park Airfield	FAGG	3 hours	62l	54l
				8l (7l unusable)	Fuel remained

Findings

1. Personnel Information

- 1.1 The pilot had a Commercial Pilot Licence (CPL) that was initially issued on 17 January 2013. The licence was reissued by the Regulator (SACAA) on 11 December 2023 with an expiry date of 30 December 2024. The pilot had flown a total of 1 308.4 hours, of which 9 hours were on the aircraft type. The pilot had the aircraft type endorsed on his licence.
- 1.2 The pilot had a Class 1 aviation medical certificate that was issued on 11 December 2023 with an expiry date of 31 October 2024. The pilot had no restrictions listed on his licence.

2. Aircraft Information

- 2.1 The aircraft was new. The last inspection that was conducted on the aircraft before the serious incident flight was certified on 1 February 2024 at 3.9 airframe hours. The serious incident occurred at 17 total flight hours, which meant that the aircraft had accrued 13.1 hours since the last inspection.
- 2.2 The aircraft had a valid Authority to Fly (ATF) Certificate that was issued by the Regulator on 14 March 2024 with an expiry date of 13 March 2025. The aircraft was airworthy when it was dispatched for the flight.

2.3	The aircraft's Certificate of Registration (C of R) was issued to the present owner on 15 February 2024.
2.4	The aircraft was issued a Certificate of Release to Service (CRS) on 2 February 2024 with an expiry date of 1 February 2025 or at 25 airframe hours, whichever occurs first.
2.5	The engine stopped in-flight due to fuel exhaustion.
Probable Cause	
Successful forced landing on a gravel road after the engine stopped due to fuel exhaustion.	
Contributing Factors	
The pilot neglected to uplift additional fuel for the planned flight to FAGG.	
Safety Action	
None.	
Safety Message	
None.	
About this Report	
<p><i>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 inquiries 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.</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>	
Purpose	
<p><i>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 apportion blame or liability.</i></p>	
Disclaimer	
<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