SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED ACCIDENT INVESTIGATION REPORT

Reference Number	CA18/2/3/10103								
Classification	Accident	**Date**	20 January 2022	**Time**	0630Z				
Type of Operation	Commercial Operation (Part 96)								
Location									
Place of Departure	Groutville Private Airstrip, KwaZulu-Natal Province	Place of Intended Landing	Shongweni Private Airstrip, KwaZulu-Natal Province						
Place of Accident	Shongweni, KwaZulu-Natal Province								
GPS Co-ordinates	Latitude	29°48' 7.22"S	Longitude	30°45' 48.81"E	Altitude	2 070.4 feet			
Aircraft Information									
Registration	ZU-IMN								
Model/Make	Micro Crafts Africa Windlass Aquilla 912 (Serial Number: WA 1234)								
Damage to Aircraft	Substantial	Total Aircraft Hours	1061.2						
Pilot-in-command									
Licence Type	National Pilot Licence (NPL)	Gender	Male	Age	29				
Licence Valid									
Total Hours on Type	1600	Total Flying Hours	1649.9						
People On-board	1+0	Injuries	1	Fatalities	0	Other (on ground)	0		

What Happened

On 20 January 2022 at 0630Z, a pilot on a Windlass Aquilla 912 microlight with registration mark ZU-IMN took off from Groutville Private Airstrip, near Stanger, to Shongweni Private Airstrip, near Durban, to spray crops on a farm. The two areas are situated in KwaZulu-Natal province. The flight was conducted during daylight in visual meteorological conditions (VMC) and under the provisions of Part 96 of the Civil Aviation Regulations (CAR) 2011 as amended.

According to the pilot, he arrived on the farm and began with the task of spraying crops and, once the spray chemical was finished, he returned to the departure airstrip where he landed safely and switched off the engine. The pilot uplifted fuel and the spray chemical for the next detail. During the take-off run and after applying full engine power to get airborne, the microlight would not accelerate fast enough to reach the rotation speed. Whilst in the middle of the runway, the pilot was still not satisfied with the pace of the speed (increasing slowly), but he continued with the take-off run.

The pilot stated that he checked if the choke was open but found that it was closed as it should be after starting the engine. Under given circumstances, he continued with the take-off run and rotated. After realising that the climbing profile was not satisfactory, he did an air turn back and

noticed that the engine power kept on decreasing, and that he was losing height rapidly, which meant that the microlight would not likely reach the take-off zone. He then opted to execute a forced landing on an open field – which was a golf driving range with advertising boards on it. The microlight rate of descent was high, and the pilot crash-landed on the embankment. The microlight was substantially damaged during the accident sequence and the pilot sustained minor injuries. The owner of the microlight was present when it took off. He confirmed that the microlight had gained enough speed to get airborne but a few seconds after getting airborne, he heard the engine revolutions per minute (RPM) decreasing and the engine laboured to continue with the flight.

What was found

- The pilot had a National Pilot Licence (NPL) with 1600 hours on type and 1649.9 total flying hours. His current licence was issued on 13 October 2021 with an expiry date of 31 October 2022.

- The pilot had a Class 1 medical certificate which was issued on 19 May 2021 with an expiry date of 31 May 2022 and with no restrictions.

- The last 50-hour annual inspection carried out on the microlight prior to the accident flight was certified on 10 January 2022 at 1026.8 airframe hours and the microlight had accumulated a total of 34.4 hours since the last inspection.

- The microlight was certified to conduct crop-spray operation under Part 96 of the CAR 2011 and with an Air Operating Certificate (AOC) No G197D, issued on 4 June 2021 with an expiry date of 30 April 2022.

Approved Person and Rotax Engine Agent Examination of the Engine:

- The Approved Person and the Rotax Engine agent checked the carb bowls and found that one carb had full fuel in it and the other had half (½) a bowl of fuel.

- The engine was started, and it operated as expected; thereafter, they warmed it up and ran it to full power. The engine developed full power and ran perfectly without any problems.

- As there was no conclusive evidence of a faulty engine, it could only be surmised that there was vapour lock in the fuel line. This could have happened whilst the microlight was being refuelled and refilled with spray chemical. The fuel pipes are mounted above the engine, and perhaps the fuel developed a vapour lock with the heat rising from the engine.

- The weight and balance were at maximum and if the aircraft lost the initial climb speed, the drag would be great, and the aircraft would lose lift a lot faster; hence, the pilot lost control of the microlight.

- After take-off and when the engine RPM dropped, it was no longer possible to keep the microlight flying due to its maximum weight.

ZU - IMN	KG's	Take Off Weight
Front Wheel Weight	33,00	
Left Wheel Weight	112,00	
Right Wheel Weight	113,00	
Total Empty weight	**258,0**	
Full Fuel 25liters x 0.74	18,0	
Pilot Weight	74,0	**350,0**
Tank Chemical		**Take Off Weight**
1/4 Tank	25,0	**375,0**
1/2 Tank	50,0	**400,0**
3/4 Tank	75,0	**425,0**
Full Tank	100,0	**450,0**

Figure 1: Weight and balance of the microlight on the day. (Source: Owner)

- The pilot was carrying 100 litres of the chemical and the maximum take-off weight was 450kg.

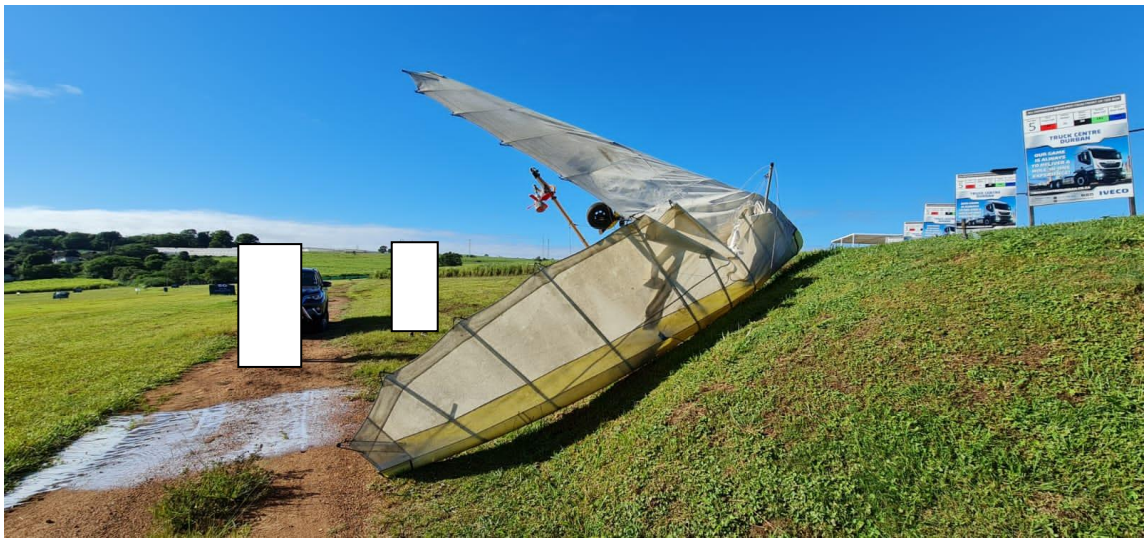

Figure 2: The final resting position of the microlight on the embankment. (Source: Pilot)

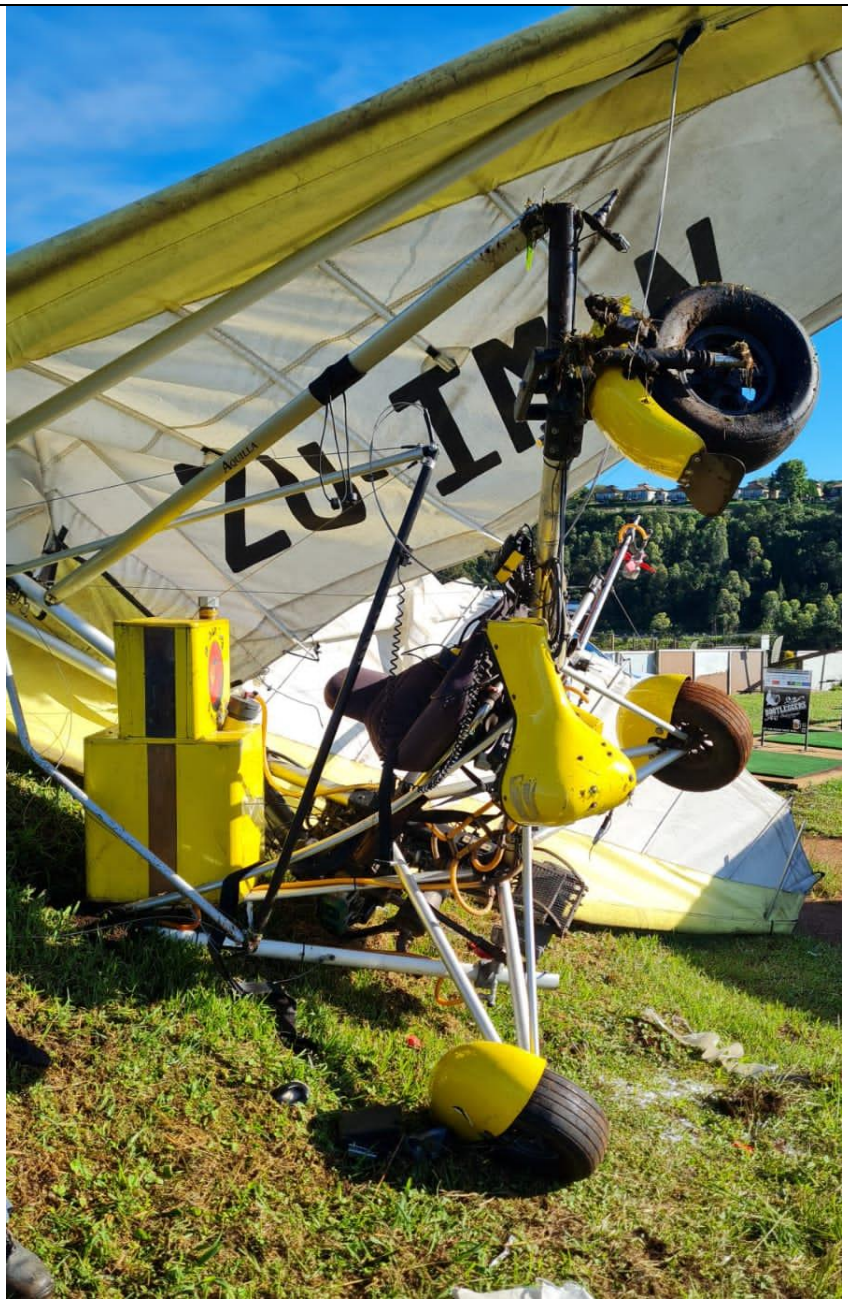

Figure 3: Microlight wreckage faced north post-accident. (Source: Pilot)

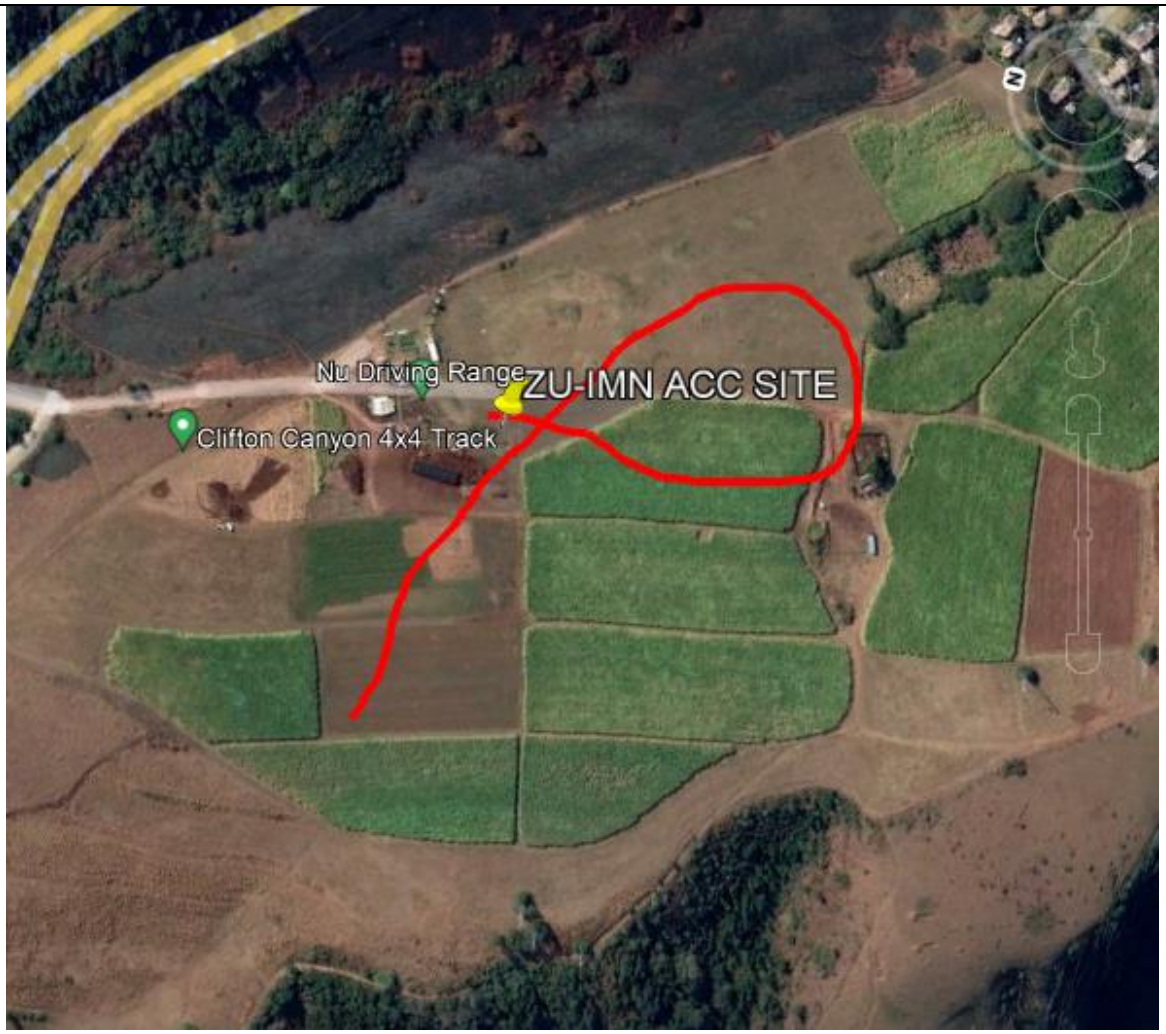

Figure 4: The microlight's flight path, according to the pilot. (Source: Google Earth)

Probable cause

The aircraft's engine RPM dropped soon after getting airborne, resulting in loss of forward speed and lift which was followed by an unsuccessful forced landing.

Contributory factors

- Weight and balance were at maximum.
- The drop in RPM could not be determined.

Safety Action/s

None.

Safety Message and/or Safety Recommendation/s

None.

Purpose of the Investigation

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****.*

About this Report

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.

This report provides an opportunity to share safety message/s in the absence of an investigation.

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.

Disclaimer

This report is issued by:

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