

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/3/2/9067	
Aircraft Registration	ZU-BSH	Date of Accident	9 August 2012		Time of Accident	1130Z
Type of Aircraft	Windlass Trike		Type of Operation	Private		
Pilot-in-command Licence Type	National Pilot License	Age	46		Licence Valid	No
Pilot-in-command Flying Experience	Total Flying Hours	71,3		Hours on Type	5	
Last point of departure	FASD, Saldana Bay, South Africa					
Next point of intended landing	FASD, Saldana Bay, South Africa					
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Approximately 5km north of Yzerfontein and approximately 1km inland between Yzerfontein and Saldanha Bay						
Meteorological Information	Wind Direction: 010°, Wind speed: 4 Knots, Temperature:14°C, Dew point: 7 °C					
Number of people on board	1+1	No. of people injured	1	No. of people killed	0	
Synopsis	<p>The pilot and passenger were on a private flight with the aircraft departing from Saldanha Bay enroute to Atlantis. Approximately 90 minutes in the flight the engine failed and the pilot executed a force landing. The microlight crashed into the sand dunes in the Yzerfontein Nature Reserve.</p> <p>During landing the gear collapsed and the wing flipped over.</p> <p>The pilot sustained serious injuries and the passenger was not injured in the accident.</p> <p>The aircraft sustained substantial damage.</p>					
Probable Cause						
Undetermined						
IARC Date				Release Date		



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Mr D Coetzee
Manufacturer : Solo Wings
Model : Windlass Trike
Nationality : South African
Registration Marks : ZU-BSH
Place : Yzerfontein Nature Reserve
Date : 9 August 2012
Time : 1130Z

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 of the Investigation:

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (2011) this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or accidents and **not to establish legal liability.***

Disclaimer:

This report is given without prejudice to the rights of the CAA, which are reserved.

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 On 9 August 2012 at 1200Z, a pilot and a passenger on board ZU-BSH a Windlass Trike, departed from Saldanha Airfield on a private flight.
- 1.1.2 One and a half hours into the flight the engine failed, forcing the pilot to carry out an emergency landing in the Yzerfontein Nature Reserve.
- 1.1.3 There wasn't a suitable area for the pilot to carry out an emergency landing and the pilot then elected to perform a forced landing in the sand dunes of the nature reserve.
- 1.1.4 The pilot was injured in the accident sequence.
- 1.1.5 The aircraft sustained substantial damage.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	-	-	-	-
Serious	1	-	-	-
Minor	-	-	-	-
None		-	1	-

1.3 Damage to Aircraft

1.3.1 The aircraft was substantially damaged.



Figure 1: Shows Microlight damages

1.4 Other Damage

1.4.1 None

1.5 Personnel Information

Nationality	South Africa	Gender	Male	Age	46
Licence Number	0272253154	Licence Type	National Pilot License		
Licence valid	No	Type Endorsed	Yes		
Ratings	Weight shift control microlight				
Medical Expiry Date	30 June 2013				
Restrictions	Corrective lenses				
Previous Accidents	Unknown				

Flying Experience:

Total Hours	71.3
Total Past 90 Days	5
Total on Type Past 90 Days	5
Total on Type	5

NOTES

- The last entry in the pilot's logbook is dated 21 May 2010. There is no record of the amount of hours flown by the pilot from 21 May 2010 until the day of the accident which was 9 August 2012.
- The above information was taken from the pilot's questionnaire.

1.6 Aircraft Information

1.6.1 Airframe:

Type	Windlass Trike	
Serial Number	WL/GB 1	
Manufacturer	Solo Wings	
Date of Manufacture	1999	
Total Airframe Hours (At time of Accident)	Unknown	
Last Annual Inspection (Date & Hours)	11 August 2009	87.5 hours
Hours since Last Annual Inspection	Unknown	
C of A (Issue Date)	Authority to Fly not valid	
C of R (Issue Date) (Present owner)	13 December 2011	
Operating Categories	NTCA	

NOTES

- The owner purchased the aircraft and applied to the SACAA for a Certificate of Registration in his name on 11 November 2011. The Certificate of Registration was issued the SACAA on 13 December 2011. The owner however did not apply for an Authority to Fly after he had the microlight registered in his name.
- According to the maintenance records, the microlight was involved in a previous accident but there is no evidence on the aircraft file or SACAA accident data base to substantiate if the accident/s were reported to the SACAA and/or investigated.

1.6.2 Engine:

Type	Rotax 503
Serial Number	3641812
Hours since New	Unknown
Hours since Overhaul	Unknown

NOTE

- Airframe logbook was not up to date. The last recorded maintenance performed on the aircraft as per available records was an annual inspection dated 11 July 2009.

1.6.3 Propeller:

Type	Geo Killey 63" x 3"
Serial Number	27
Hours since New	Unknown
Hours since Overhaul	Unknown

1.7 Meteorological Information

1.7.1 Weather Information obtained from the South African Weather Services.

Wind direction	010°C	Wind speed	4 knot	Visibility	Clear
Temperature	14°C	Cloud cover	None	Cloud base	None
Dew point	7°C				

1.7.2 Weather information obtained from the Pilot's Questionnaire.

Wind direction	North	Wind speed	Unknown	Visibility	Unknown
Temperature	Hot/Mild	Cloud cover	None	Cloud base	none
Dew point	Unknown				

1.7.3 It is believed that the weather conditions that prevailed on the morning of the accident did not contribute to the cause of the accident.

1.8 Aids to Navigation

1.8.1 Seeing that there were no entries on the logbooks, the serviceability of the navigational equipment cannot be verified as it was not inspected for some time, we do not know if the equipment on the aircraft at the time of the accident was approved.

1.9 Communications.

1.9.1 Seeing that there were no entries in the logbooks, the serviceability of the communication equipment cannot be verified as it was not inspected for some time, we do not know if the equipment on the aircraft at the time of the accident was approved. The aircraft was equipped with standard communication equipment as approved by the regulator for the aircraft type. There were no recorded defects that the Communications system was unserviceable prior to or during the flight.

1.10 Aerodrome Information

1.10.1 The accident did not occur near the airfield.

1.10.2 Approximately 5km north of Yzerfontein and approximately 1km inland between Yzerfontein and Saldanha Bay.

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with a Flight Data Recorder (FDR) or a Cockpit Voice Recorder (CVR) nor was either required by the regulations.

1.12 Wreckage and Impact Information

1.12.1 The pilot looked for a suitable area to carry out an emergency landing. He was therefore forced to land in the Yzerfontein Nature Reserve. The terrain however was unsuitable to carry out a landing.



Figure 2: The terrain (Yzerfontein Nature Reserve).



Figure 3: The microlight at the accident site.

1.12.2 During the landing sequence, the microlight crashed into the sand dunes and the wings flipped over, causing the microlight to sustain substantial damage.

1.13 Medical and Pathological Information

1.13.1 The pilot and the passenger were airlifted from the accident site and taken to hospital for medical attention.

1.14 Fire

1.14.1 There was no evidence of a pre or post impact fire.

1.15 Survival Aspects

- 1.15.1 The accident was considered survivable due to the low impact forces.
- 1.15.2 The pilot and passenger were properly restrained by the aircraft safety harness fitted to the microlight
- 1.15.3 The NSRI Yzerfontein volunteer sea rescue duty crew joined in an existing search following reports that a microlight crashed between Yzerfontein and Saldanha Bay in the vicinity of 60 Mile Beach.

1.16 Tests and Research

- 1.16.1 None considered necessary.

1.17 Organizational and Management Information

- 1.17.1 The flight in question was a private flight.
- 1.17.2 The last Annual Inspection carried out on this microlight prior to the accident was certified on 11 July 2009 by Approved Person 127. The entry in the logbook states the following

“Annual Inspection: Test flight and list of minor defect list forwarded to owner. Found aircraft serviceable but A-frame and keel tube of wing asymmetrical – needs to be repaired after accident – best send off to Solo wings”

This evidence indicates that the aircraft was involved in a previous accident, however there is no information regarding a previous accident.

- 1.17.3 Maintenance carried out on this microlight was done so by the pilot who is also the owner.
- 1.17.4 There has been minimal interaction between the SACAA and / or RAASA with this particular aircraft and the owner

1.18 Additional Information

- 1.18.1 The owner of ZU-BSH stated that he was under the impression that the Aeroclub membership payment was actually for the Authority to Fly.
- 1.18.2 The pilot did not report the accident to the SACAA as he was under the impression that the NSRI would report the accident to the relevant authorities.
- 1.18.3 The following was noted in the remarks column under the Pilot’s student license on the licensing system: The licensing system flagged the pilot’s licence as “not issued” due to irregular use of the instructor’s particulars to obtain the licence.
- 1.18.4 Permission had to be obtained from the Yzerfontein Nature Reserve authorities to remove the microlight, so ZU-BSH remained at the crash site and was exposed to the elements for 3 days.
- 1.18.5 The microlight was recovered by the owner.
- 1.18.6. The pilot could not provide the Investigator-in-charge with the maintenance

manuals and pilot operating handbook.

1.18.7 The pilot indicated that the engine was running rough.

1.18.8 He also indicated that there was sufficient fuel for the duration of the flight.

1.18.9 Rotax 503 specification of Rotax 503 engine model fuel consumption indicates that the fuel tank capacity is 38 litres with a fuel consumption rate of 15 litres per hour.

1.19 Useful or Effective Investigation Techniques

1.19.1 None

2. ANALYSIS

2.1 MAN

The pilot was the holder of an expired national pilot's license at the time of the accident. He did have the aircraft type endorsed in it. The pilot was in possession of a valid medical certificate. The pilot's total flying experience on the Windlass Trike was total is 71.5 hours, with a total of 5 hour on type. The last entry in the pilot's logbook was on 25 July 2010, therefore his flying hours for the month preceding the accident could not be verified.

The pilot did not apply for the authority to fly certification after the purchase of the aircraft. The pilot stated that he assumed that the joining fee at the Aeroclub was inclusive of the flying authority certification. The pilot's actions and statements indicate that his knowledge and understanding of Aviation regulations was inadequate.

2.2 MACHINE

The pilot stated that he departed with a full tank of fuel and had flown for 90 minutes when he had experienced engine failure. The fuel consumption of the engine model fitted on the microlight at 38 litres of fuel allows the aircraft to fly for 2.5 hours before the next refuel. Therefore if the pilot flew for 90 minutes prior to engine failure, at the time of the accident the fuel was still sufficient for flight. This means there was a problem in supplying fuel to maintain normal operation of the engine. The problem is usually a result of fuel starvation which can be caused by either fuel contamination, an air gap in the fuel line or fuel restriction in the fuel system.

Fuel starvation is slightly different from fuel exhaustion, in that fuel is in the tank but there is a supply problem which either fully or partially prevents the fuel from reaching the engine. Causes may include a blocked fuel filter, problems with fuel tank selection if multiple tanks are installed, or more commonly water-contaminated fuel.

The pilot indicated that the engine was running rough. According to the Rotax operator's manual, one of the causes for the engine rough running failure is false fuel air mixture. Fuel has a lower specific gravity than water which means that any water in the fuel will collect in the bottom of a fuel tank. As fuel is typically drawn from the lowest part of the tank, water is delivered to the engine instead and the engine starves.

The pilot maintained the microlight by himself. There are no records showing that

the pilot was a qualified maintenance approved personnel. The lack of documented evidence for maintenance carried out by the pilot, also questions the serviceability of the microlight. Poor maintenance practices could have contributed in the formation of the green substance over period in the fuel filter.

Fuel filters are supposed to be changed periodically as per the manufacturers Annual Inspection program. Fuel filters filtrate dirt carried by the fuel to prevent them from blocking the fuel pump and entering the carburettor and combustion chamber. If they are not changed accordingly, filtrates end up building up substances which cause filter clogging to the normal fuel supply.

During the investigation it was determine that the aircraft was involved in a previous accident which was never reported and the damages properly repaired, therefore the microlight aircraft was not airworthy.

2.3 ENVIRONMENT

The terrain surface was not suitable for landing and resulted in the microlight sustaining substantial damage during the unsuccessful landing. It is believed that the weather conditions that prevailed on the morning of the accident did not contribute to the cause of the accident.

3. CONCLUSION

3.1 Findings

- 3.1.1 Pilot was in possession of a valid medical at the time of the accident.
- 3.1.2 The pilot's license expired on 24 July 2012 and was therefore not licensed for the flight in accordance with existing regulations.
- 3.1.3 Last entry in the pilot logbook is dated 25 July 2010.
- 3.1.4 When interviewed, the pilot stated that he did not do Air Navigation Regulations or SA-CAT's and SA-CAR's, yet he was issued with a Pilot's License.
- 3.1.5 The microlight had a valid Certificate of Registration.
- 3.1.6 The microlight did not have a valid Authority to Fly Certificate since the last change in ownership.
- 3.1.7 The microlight information has not been transferred to the new aircraft logbooks. The part numbers and serial numbers of the engine and propeller are not reflected in the logbooks.
- 3.1.8 Last entry in airframe logbook for annual inspection is dated 11 July 2009.
- 3.1.9 The total airframe hours at the time of the accident is unknown, as stated by the pilot in the Pilot Questionnaire and as there was no documented evidence.
- 3.1.10 The maintenance records indicated that the aircraft was not equipped and maintained in accordance with existing regulations and approved procedures.
- 3.1.11 The pilot could not provide the Investigator-in-charge with the maintenance manuals and pilot operating handbook for the microlight.

3.1.12 The pilot's actions and statements clearly indicated that his knowledge and understanding of Aviation Regulation were inadequate at the time of the accident.

3.1.13 The weather conditions that prevailed on the day of the accident was not considered to be a factor in the accident.

3.1.14 There was no evidence of the SACAA and RAASA having carried out oversight to ensure regulatory compliance.

3.1.15 RAASA and SACAA monitoring systems had been neglected in identifying and making the operator correct the procedural of shortcoming.

3.2 Probable Cause/s

3.2.1 Unsuccessful Forced Landing

3.2.2 Inadequate Regulatory / Safety Oversight

3.3 Contributing factor/s

3.3.1 Undetermined

4. SAFETY RECOMMENDATIONS

4.1 None

5. APPENDICES

5.1 None