



<b>AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY</b>
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				Reference:	CA18/2/3/8933	
<b>Aircraft Registration</b>	ZU-CNB	<b>Date of Accident</b>	06 June 2011		<b>Time of Accident</b>	1345Z
<b>Type of Aircraft</b>	Windlass Aquilla-Microlight		<b>Type of Operation</b>	Private		
<b>Pilot-in-command Licence Type</b>		Microlight	<b>Age</b>	40	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>		Total Flying Hours	346.8		Hours on Type	346.8
<b>Last point of departure</b>		Micro-land aerodrome (Gauteng province).				
<b>Next point of intended landing</b>		Bapsfontein aerodrome (Gauteng province).				
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
Endicot farm near Springs at GPS coordinates determined to be S26°17' .82" E028°35' .74".						
<b>Meteorological Information</b>	Surface wind; 10 kts, Temperature; 18°C, Partly cloudy conditions prevailed.					
<b>Number of people on board</b>	1 + 1	<b>No. of people injured</b>	1	<b>No. of people killed</b>	0	
<b>Synopsis</b>						
<p>ON 06 June 2011, the Civil Aviation Authority (SACAA) was notified by a Microlight pilot of a non fatal accident involving a Microlight aircraft (Windlass Aquilla) that occurred on a farm at Springs. Approximately 13.5 nautical miles before Springs, the pilot requested the passenger to confirm the aircraft fuel level. At the time apparently 15 litres still remained in the fuel tank. Observing that the aircraft fuel level was low, the pilot attempted to locate the closest aerodrome which was in fact Springs (FASI) situated at the East Rand in Gauteng with the intention to refuel again. Just prior to arriving at Springs the propeller made some noise and the engine suddenly lost power. The pilot immediately looked for a suitable place in order to execute a forced landing. According to the pilot, the wind was very strong and the aircraft drifted over the area he intended to land on. He kept control of the forced landing but in the event he failed to clear the telephone wires spanned across an open area at Endicott farm and collided with the wires rendering ground impact inevitable. The pilot suffered serious injuries and the aircraft was substantially damaged. The aircraft was operated under Part 135 of the Civil Aviation Regulations.</p>						
<b>Probable Cause</b>						
Unsuccessful landing due to collision with wires following fuel exhaustion.						
IARC Date				Release Date		
CA 12-12a		<b>25 MAY 2010</b>		Page 1 of 11		



## AIRCRAFT ACCIDENT REPORT

**Name of Owner/Operator** : Carshagen W  
**Manufacturer** : Solo Wings CC  
**Model** : Windlass Aquilla  
**Nationality** : South African  
**Registration Marks** : ZU-CNB  
**Place** : Endicot farm near Springs  
**Date** : 06 June 2011  
**Time** : 1343Z

*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 (1997) 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 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 Monday 06 June 2011, the pilot accompanied by a passenger departed Micro-land aerodrome on a local private flight under Visual Flight Rules (VFR) via Amersfoort bound for Bapsfontein aerodrome. According to the pilot the weather forecast was stable for the day and he performed a thorough pre-flight inspection prior departure. The aircraft was started and taxied to the runway threshold where after an engine ground run was performed before takeoff. The pilot applied full power and the aircraft climbed to 1400 feet altitude.

1.1.2 The pilot then leveled off and headed towards Amersfoort aerodrome with the intention to refuel before heading to Bapsfontein and the whole segment of the flight proceeded normally. Landing clearance was obtained at Amersfoort aerodrome and the aircraft landed safely. After landing, both occupants had some beverages and then refuelled the aircraft to full capacity. Shortly afterwards the pilot started the aircraft and took off again.

- 1.1.3 Climb out was uneventful and approximately 13.5 nautical miles before Springs, the pilot requested the passenger to confirm the aircraft fuel level. At the time apparently 15 litres still remained in the fuel tank. Observing that the aircraft fuel level was low, the pilot attempted to locate the closest aerodrome which was in fact Springs (FASI) situated at the East Rand in Gauteng with the intention to refuel again. Just prior to arriving at Springs the propeller made some noise and the engine (Rotax 582 UL 99) suddenly lost power.
- 1.1.4 The pilot immediately looked for a suitable place in order to execute a forced landing. According to the pilot, the wind was very strong and the aircraft drifted over the area he intended to land on. He kept control of the forced landing but in the event he failed to clear the telephone wires spanned across an open area at Endicott farm and collided with the wires rendering ground impact inevitable.
- 1.1.5 The pilot and the passenger immediately released their safety harnesses and exited aircraft. People who witnessed the accident immediately called the emergency services and rushed to the accident site to render some assistance. The pilot was seriously injured and was treated on the scene by medical personal from ER24. Later during the day the pilot was transported by ambulance to Polosong hospital. The aircraft was substantially damaged on impact with the telephone wires and the ground.
- 1.1.6 Witnesses who were located outside a house in the area reported that they saw the aircraft at a nose down low altitude which appeared to be unstable just before colliding with the telephone wires.
- 1.1.7 The accident occurred during daylight conditions at a geographical position determined to be S26°17 ' .82" E028°35 ' .74.

## 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: View of the accident site and the terrain.

#### 1.4 Other Damage:

1.4.1 Damage was limited to the telephone wires spanned across the open field at Endicott farm.



Figure 2: View of damaged telephone wires from a distance.

## 1.5 Personnel Information:

Nationality	South African	Gender	Male	Age	40
Licence Number	0272245994	Licence Type	Microlight		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	31 March 2012				
Restrictions	None				
Previous Accidents	Yes				

### Flying Experience:

Total Hours	346.8
Total Past 90 Days	5.5
Total on Type Past 90 Days	5.5
Total on Type	346.8

## 1.6 Aircraft Information:

### 1.6.1 Aircraft description:

A Windlass Aquilla is an aircraft that is not designed to carry more than two passengers and has a maximum take-off weight not exceeding 450kg. The aircraft is powered by a Rotax 582 engine and equipped with a geographic positioning satellite system (GPS).



Figure 3: View of a Windlass Aquilla aircraft.

**Aircraft:**

Type	Windlass Aquilla	
Serial Number	WA922	
Manufacturer	Solo Wings	
Date of Manufacture	2001	
Total Airframe Hours (At time of Accident)	500	
Last MPI (Date & Hours)	01 March 2011	1
Hours since Last MPI	12.5	
Authority to Fly (Issue Date)	17 November 2010	
C of R (Issue Date) (Present owner)	14 October 2009	
Operating Categories	None type certified	

\*NOTE: The Aircraft Maintenance Organisation (AMO) that performed the last inspection on the aircraft prior to the accident flight was in possession of a valid AMO Approval Certificate.

**Engine:**

Type	Rotax 582
Serial Number	5306544
Hours since New	Unknown
Hours since Overhaul	Unknown

**Propeller:**

Type	Warp drive
Serial Number	610507
Hours since New	Unknown
Hours since Overhaul	Unknown

**Weight and Balance:**

	Weight (kg)
A/C Empty weight	220
Pilot	85
Passenger	64
Baggage	00
Fuel (50 litres)	35
<b>Total T/O Weight</b>	<b>404</b>

\*NOTE: The maximum certified take-off weight for this aircraft type is 450kg according to the aircraft manufacturer. The aircraft was loaded within the maximum allowable take-off weight specifications at the time of the accident.

## 1.7 Meteorological Information:

1.7.1 The following information was provided by the South African Weather Services:

Wind direction	360°	Wind speed	10 Knots	Visibility	CAVOK
Temperature	18°C	Cloud cover	None	Cloud base	None
Dew point	None				

\*NOTE: Weather conditions in the vicinity of the accident: The satellite image shows few clouds over the area of accident. The METAR shows moderate winds close to the ground and with CAVOK conditions reported over OR Tambo International Airport. The temperature and dew point measured at the time shows dry conditions close to the ground. Strong winds are highly possible at the higher levels.

## 1.8 Aids to Navigation:

1.8.1 The aircraft was equipped with standard navigation equipment for the type. This was serviceable at the time of the accident.

## 1.9 Communications:

1.9.1 The aircraft was equipped with VHF radio communication equipment. The communication equipment was serviceable at the time of the incident.

## 1.10 Aerodrome Information:

1.10.1 The accident occurred during daylight on a farm at a geographical position determined to be S26°17' .82" E028°35' .74.

## 1.11 Flight Recorders:

1.11.1 The aircraft was not fitted with a flight data recorder or cockpit voice recorder nor was it required by the regulations.

## 1.12 Wreckage and Impact Information:

1.12.1 The aircraft collided with telephone wires spanned across an open grass area at Endicot farm rendering ground impact inevitable. The aircraft then impacted the ground in a steep nose down attitude and was in a Westerly direction. Trapeze bar cables were substantially damaged by the impact and a two bladed wooden propeller showed signs of not been producing power prior to impact. Both wings and undercarriage were substantially damaged. Below is a photo of a broken nose gear.



**Figure 4: View of a nose landing gear.**

### **1.13 Medical and Pathological Information:**

1.13.1 The pilot was in possession of a valid medical certificate.

### **1.14 Fire:**

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

### **1.15 Survival Aspects:**

1.15.1 According to the impact damage the accident was survivable.

### **1.16 Tests and Research:**

1.16.1 On site investigation revealed that the pilot failed to clear the telephone wires spanned across an open field at Endicot farm after he experienced a loss of power.

1.16.2 The photo below showed the amount of fuel drained from the fuel tank ( $\pm$  1 litre).





**Figure 5: Fuel drained from the aircraft.**

## **1.17 Organizational and Management Information:**

1.17.1 This was a private flight and the pilot was the owner of the aircraft.

## **1.18 Additional Information:**

1.18.1 Fuel and oil supply:

According to CARS Chapter 91.07.12:

(1) The pilot-in-command of an aircraft shall not commence a flight unless he or she is satisfied that the aircraft carries at least the planned amount of fuel and oil to complete the flight safely, taking into account operating and meteorological conditions and the expected delays.

(2) The pilot-in-command shall ensure that the amount of usable fuel remaining in-flight is not less than the fuel required to proceed to an aerodrome or, in the case of a helicopter, a suitable landing place, where a safe landing can be made.

(3) If the usable fuel on board the aircraft is less than the final reserve fuel, the pilot-in-command of such aircraft, shall –

- (a) in the case of an aeroplane, declare an emergency; or
- (b) in the case of a helicopter, land as soon as possible.

1.18.2 According to CARS Chapter 91.06.1;

No pilot shall use a public road as a place of landing or take-off in an aircraft, except –

- (a) in the case of an emergency involving the safety of the aircraft or its occupants;
- (b) for the purpose of saving human lives.

## **1.19 Useful or Effective Investigation Techniques:**

1.19.1 None.

## **2. ANALYSIS:**

2.1 The pilot, who was accompanied by a passenger was licensed and qualified for the flight in accordance with the existing regulations. There was no evidence that his performance was affected in any way during the flight. On-site investigation revealed that the pilot neglected to perform a thorough pre-flight planning, "thus taking into account the aircraft fuel consumption and calculating the distance or range between all the aerodromes identified".

## **3. CONCLUSION:**

### **3.1 Findings:**

3.1.1 The pilot was the holder of a valid Micro-light pilot's license and had the aircraft type endorsed on his license.

3.1.2 The aircraft had a valid Authority to Fly at the time of the accident.

3.1.3 The micro-light was loaded within the allowable maximum take-off weight parameters (not to exceed 450kg).

### **3.2 Probable Cause/s:**

3.2.1 Unsuccessful landing due to collision with wires following fuel exhaustion.

## **4. SAFETY RECOMMENDATIONS:**

4.1 None.

## **5. APPENDICES:**

### **5.1 Windlass Aquilla aircraft specifications:**

POWER PLANT	Rotax 582, 4 cylinder, 4 stroke, liquid cooled, dual ignition, reduction gear box 1= 2.27, electric start
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WING AREA	15 square metres
WING SPAN	15 metres
EMPTY WEIGHT	220 kg
TAKE OFF WEIGHT	450kg
MAXIMUM PAY LOAD	210 kg
FUEL CAPACITY	50 litres
FUEL RATING	95-97 Octane
DESIGN LOAD	NEGATIVE -3's & POSITIVE 6's

**Performance:**

CRUISE SPEED		65-100 kph
FUEL COMSUMTION	SOLO	8 litres per hour
FUEL COMSUMTION	DAUL	10 litres per hour

**Limiting and recommended air speed:**

Best angle of climb	30 degrees
Best rate of climb	79 kph
Never exceeds	140 kph
Stall with full load	60 kph

Compiled by:

Frans Malose Motaung

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**For: Director of Civil Aviation**

Date: 09 March 2012.....

Investigator-in-charge: .....

Date: .....

Co-Investigator: .....

Date: .....