

<b>AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY</b>
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				Reference:	CA18/2/3/ 9009	
<b>Aircraft Registration</b>	ZU-EGH	<b>Date of Accident</b>	4 February 2012		<b>Time of Accident</b>	0615Z
<b>Type of Aircraft</b>	Microlight – Windlass Aquila 582		<b>Type Operation</b>		Private	
<b>Pilot-in-command Licence Type</b>		Microlight	<b>Age</b>	42	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>		Total Flying Hours	± 285.0		Hours on Type	± 285.0
<b>Last point of departure</b>		Crosswinds Airfield – Krugersdorp, Gauteng				
<b>Next point of intended landing</b>		Crosswinds Airfield – Krugersdorp, Gauteng				
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
An open grass field at GPS co-ordinates: S 26°02.352' E027°42.199' in the Krugersdorp area.						
<b>Meteorological Information</b>		Wind direction:080°, Wind speed: 04 kt, Temperature: 21°C , Visibility: CAVOK.				
<b>Number of people on board</b>	1 + 1	<b>No. of people injured</b>	1	<b>No. of people killed</b>	1	
<b>Synopsis</b>						
<p>On 04 February 2012, the pilot who was also the owner of the aircraft arrived at Crosswinds airfield accompanied by two passengers early in the morning in order to conduct two private scenic flights in the General Flying Area (GFA). The aircraft was refuelled to full capacity of 50 litres.</p> <p>At approximately 0515Z, the pilot accompanied by the first passenger, aged 10 years old, departed Crosswinds airfield to the Krugersdorp general flying area on the first flight of the day. The pilot reported that the flight was uneventful and after flying for approximately 30 minutes the aircraft landed safely back at Crosswinds airfield at approximately 0545Z.</p> <p>At approximately 0555Z, the pilot accompanied by a female passenger departed Crosswinds airfield on the second GFA private scenery flight of the day. The pilot flew in a north-westerly direction overhead the “Cradle of Humankind” located at the GPS co-ordinates of S25°56'.425” E027° 47'.260”, overhead the “Lion &amp; Rhino Park Nature Reserve” at GPS co-ordinates of S25° 58'.290” E027° 47'.610” and “Sterkfontein Caves” at GPS co-ordinates of S26° 03'.526” E027° 44'.212”.</p> <p>The aircraft collided with high tension power lines, approximately 12 metres high spanned across the open field area, approximately 30nm West of Crosswinds Airfield. The pilot who was seriously injured was airlifted to hospital. The female passenger, who was fatally injured, succumbed to her injuries at the accident site.</p>						
<b>Probable Cause</b>						
Aircraft collided with high tension wires during a low level flight.						
Contributory factors: Not maintaining safe altitude.						
IARC Date				Release Date		



## AIRCRAFT ACCIDENT REPORT

**Name of Owner/Operator** : Paradise Petals SA (Pty) Ltd  
**Manufacturer** : Solo Wings CC  
**Model** : Windlass Aquilla  
**Nationality** : South African  
**Registration Marks** : ZU-EGH  
**Place** : Tarlton Oaks - Krugersdorp  
**Date** : 4 February 2012  
**Time** : 0615Z

*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 04 February 2012, the pilot who was also the owner of the microlight aircraft arrived at Crosswinds airfield accompanied by two passengers early in the morning in order to conduct two private scenic flights in the GFA. He refuelled the aircraft to full capacity of 50 litres and carried out a pre-flight inspection on the aircraft. The pilot stated that he briefed the two passengers with the relevant instructions and the intentional flights that were planned.
- 1.1.2 At approximately 0515Z, the pilot accompanied by the first passenger, aged 10 years, departed from Crosswinds airfield to the Krugersdorp GFA on the first flight of the day. The pilot reported that the flight was uneventful and after flying for approximately 30 minutes the aircraft landed safely back at Crosswinds airfield at approximately 0545Z.
- 1.1.3 At approximately 0555Z, the pilot accompanied by a female passenger departed Crosswinds airfield on the second scenic flight to the GFA of the day. The pilot stated that after take-off he flew in a north-westerly direction and performed a clockwise turn overhead the "Cradle of Humankind" located at the GPS co-ordinates of S25°56'.425" E027° 47'.260", overhead the "Lion & Rhino Park Nature Reserve" at GPS co-ordinates of S25° 58'.290" E027° 47'.610" and the "Sterkfontein Caves" at GPS co-ordinates of S26° 03'.526" E027° 44'.212". The Google earth map below shows the flight path flown by the pilot on the second, fatal flight:

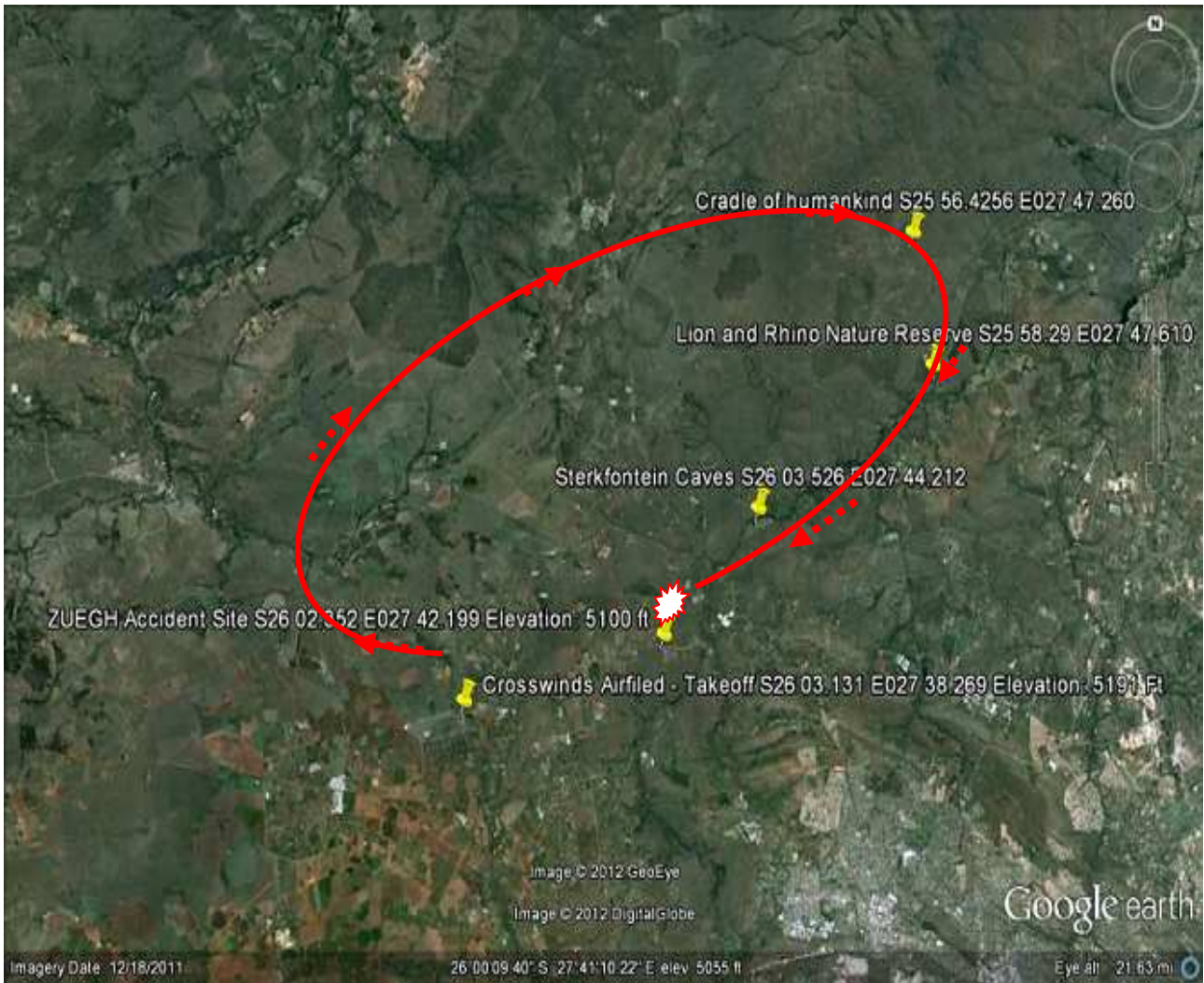


Figure 1, Google earth shows flight path of the aircraft prior to the fatal accident.

- 1.1.4 The pilot further stated that all he could remember was when he was flying overhead the Sterkfontein Caves and descending toward Tarlton Oak in order to fly past Orion Airfield at approximately 0615Z. He only became conscious whilst lying on the ground on his left hand side facing the passenger lying on her right hand side.
- 1.1.5 The pilot who was seriously injured was airlifted to hospital when the medical services arrived at the accident site. The female passenger, who was fatally injured, succumbed to her injuries at the accident site.
- 1.1.6 It was established that the microlight collided with high tension wires, approximately 12 metres high, spanned across the open field and then impacted the grass covered rocky terrain, approximately 50 metres beyond the high tension wires. The aircraft was substantially damaged during impact sequence that followed.



## 1.2 Injuries to Persons

Injuries	Pilot	Crew	Passengers	Other
Fatal	-	-	1	-
Serious	1	-	-	-
Minor	-	-	-	-
None	-	-	-	-

## 1.3 Damage to Aircraft

1.3.1 The microlight aircraft sustained substantial impact damage during the collision with the high tension wires and on impact with the terrain that followed.



Figure 2 and figure 3, shows the aircraft's main wreckage at the grass covered rocky terrain.

## 1.4 Other Damage

1.4.1 The high tension wires were severed when the microlight collided with it.

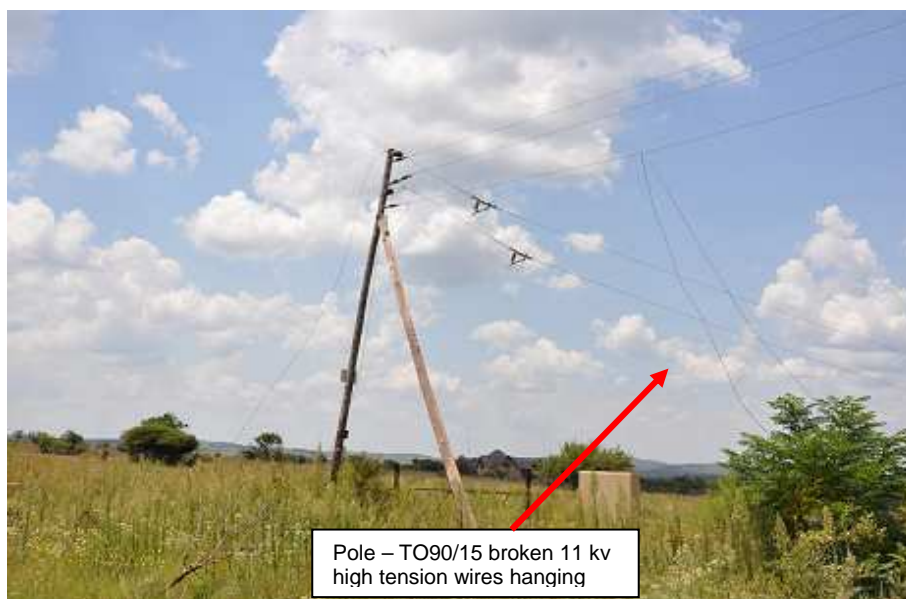


Figure 4, shows the damage to the high tension power lines.

## 1.5 Personnel Information

Nationality	South African	Gender	Male	Age	42
Licence Number	0272208950	Licence Type	Microlight		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	31 May 2012				
Restrictions	None				
Previous Accidents	None				

Flying Experience:

Total Hours	285.0
Total Past 90 Days	6.0
Total on Type Past 90 Days	6.0
Total on Type	285.0

- 1.5.1 The pilot completed his student pilot's license (SPL) training on the Windlass Aquilla 582 microlight aircraft and was issued with a National Pilot License (NPL) which authorised him to fly microlight aircraft with the type rating endorsed on the license. His license was valid until 30 November 2012.
- 1.5.2 According to the pilot's flying logbook, the pilot started flying the microlight from August 2009 and flew the aircraft quite frequently in the Krugersdorp area which suggested that he was familiar with the local flying area.
- 1.5.3 The only anomaly noted in the pilot's flying logbook was that the logbook was not updated with the recently flown flight time. The last entries of flying hours in the logbook were certified on 04 December 2011. The pilot flew a total amount of 247.2 hours up to the last recorded date. The flying hours which is included in the above table was calculated based on information obtained from the pilot.

## 1.6 Aircraft Information

### 1.6.1 Airframe:

Type	Windlass Aquilla 582	
Serial Number	WA 1142	
Manufacturer	Solo Wings CC	
Date of Manufacture	July 2006	
Total Airframe Hours (At time of Accident)	272.20	
Last Annual Inspection (Date & Hours)	12 April 2011	213.45
Hours since Last Annual Inspection	58.75	
Authority to Fly (Issue and Expiry Date)	14 April 2011	11 April 2012
C of R (Issue Date) (Present owner)	25 August 2006 Paradise Petals SA (Pty) Ltd	
Operating Categories	Private Operation Authority to Fly	

### 1.6.2 Engine:

Type	Rotax 582 UL
Serial Number	6141290
Hours since New	272.20
Hours since Overhaul	TBO not reached.

### 1.6.3 Propeller:

Type	NC Composite Prop
Serial Number	WA 1142610
Hours since New	272.20
Hours since Overhaul	On condition

1.6.4 The aircraft Certificate of Registration and Authority to Fly documentation was checked during the investigation and found to be valid.

1.6.5 The aircraft maintenance documentation, (logbooks and flight folio) was also checked and found to be in compliance with applicable regulations. There were no deferred defects or entries of maintenance found that was not actioned.

1.6.6 According to the pilot, he did not experience any defect or malfunction with the aircraft prior or during the flight. The aircraft was in a satisfactory condition and serviceable for the flight.

1.6.7 The aircraft mass and balance was within the specified limits.

1.6.8 According to the pilot, the aircraft fuel tank was refuelled to a full capacity of 50 litres for the intended flights. The aircraft was flown for approximately 50 minutes on the day that the accident occurred. .

## 1.7 Meteorological Information

1.7.1 The weather information included in the column below was obtained from the South African Weather Services (SAWS). According to the weather services, there is no weather station at Krugersdorp. The only weather observation data are recorded in Lanseria (FALA) and Potchefstroom (FAPS) to be used to reflect the most probable weather data in the vicinity of the aircraft accident.

(i) METAR FALA 040600Z 08004KT 040V150 CAVOK 21/14 Q1023 NOSIG=

(ii) METAR FAPS 040600Z Auto 05004KT //// // ///// 21/15 Q1022=

1.7.2 The surface pressure/geopotential height analysis also depicted a heat low over the south-western parts of Gauteng, in the vicinity of Krugersdorp, where cool to warm surface temperatures and light to moderate north-easterly winds were likely. Clear skies were observed over Krugersdorp about the time of the accident.

## **1.8 Aids to Navigation**

- 1.8.1 The aircraft was equipped with the standard navigation equipment which was approved for the aircraft type. The pilot reported that he did not experience any defect or malfunction with the aircraft navigation equipment. The navigation equipment was in a serviceable condition.
- 1.8.2 The Garmin GPS III Pilot was also installed into the aircraft which was on the approved navigational equipment list. The pilot was flying the aircraft under Visual Flight Rules (VFR) and the GPS was used during the flight as a backup navigation instrument.

## **1.9 Communications.**

- 1.9.1 The aircraft was operated in uncontrolled airspace. All transmissions were done on the general flying frequencies.
- 1.9.2 The aircraft was equipped with a fixed station mobile (Vertex Standard Pilot 111) type VHF radio communication transmitter. The pilot reported that he did not experience any defect or malfunction with the aircraft radio communication equipment. The radio communication equipment was in a serviceable condition at the time of the accident.
- 1.9.3 The resident of Tarlton Oak immediately reported the aircraft accident to the security company service provider in the area. The security company management then notified the South African Police Service (SAPS), Provincial Disaster Management Centre and Search and Rescue Centre of the accident. The SAPS and Medical Services were dispatched to the accident scene to render assistance. The security company co-ordinated the communications between all the identified parties.

## **1.10 Aerodrome Information**

- 1.10.1 The location of the accident site was approximately 30 nautical miles (NM) west of Crosswinds airfield. The aircraft impacted high tension wires first before it crashed in a rocky open grassy covered field at GPS co-ordinates of S26°02.352' E027°42.199' at an elevation of 5100ft AMSL.
- 1.10.2 The pilot stated that his intention was to fly past Orient airfield en route to Crosswinds airfield and that he was aware of the high tension wires on the approach path to Runway 29. The GPS co-ordinates at Orient Airfield are S26° 20.230 and E 027° 35.390 at an elevation of 5100ft AMSL.

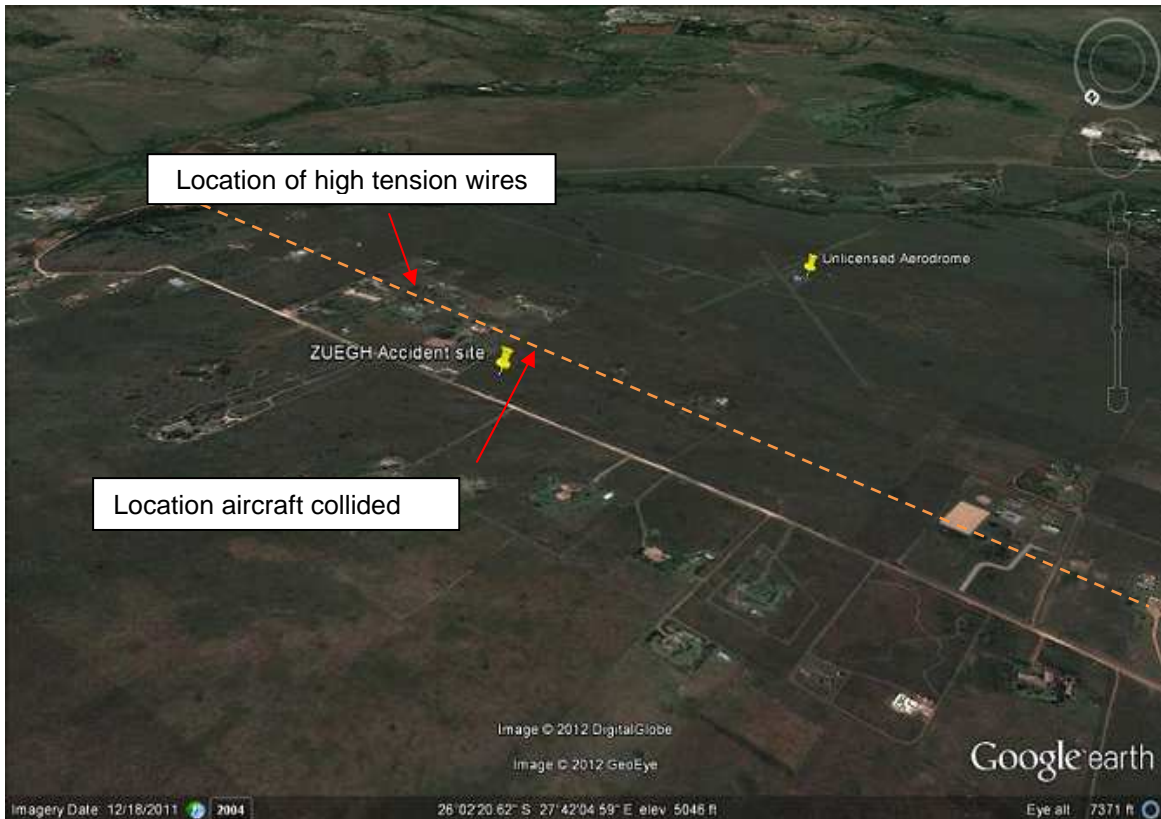


Figure 5, Google map shows location of the accident site

- (i) The distance from the high tension wires to Runway 29 at Orion airfield was measured and determined to be approximately 580 meters long.
- (ii) The distance from the high tension wires and the accident site was measured and determined to be approximately 50 metres.
- (iii) The height of the high tension wires is approximately 12 metres (33ft).

## 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 it required by regulation.

## 1.12 Wreckage and Impact Information

1.12.1 The microlight aircraft was flying at a low level altitude in an Easterly direction towards Crosswinds Airfield when the aircraft collided with the high tension wires which spanned across the open grassy field at Tarlton Oaks near Krugersdorp.



1.12.2 After the aircraft impacted the high tension wires at the centre of two wooden poles supporting the high tension wires, the aircraft impacted the terrain at the GPS coordinates of S26°02.352' E027°42.199' at an elevation of 5100ft AMSL.

1.12.3 The aircraft wreckage came to rest approximately 50 metres beyond the high tension wires. The wreckage remained fairly intact after it collided with the high tension wires and during the ground impact sequence. The aircraft airframe structure, wings, undercarriage, engine and propeller were substantially damaged during the accident sequence.



Figure 5, shows the damage caused to the airframe structure.



Figure 5 and 6, shows the damage caused to the propeller during the impact sequence.

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

1.13.1 The first persons that arrived at the scene were residents from the nearby farms with the intention to render assistance to the occupants. According to the residents, the pilot and passenger were lying on the ground, outside the aircraft.

1.13.2 According to a local resident, the female passenger appeared to have sustained serious/fatal injuries and required immediate medical attention. Whilst waiting for the emergency medical services (EMS) to arrive at the scene, the required CPR was given to her until the EMS arrived to render further medical treatment. The passenger succumbed to her injuries at the scene.

1.13.3 The pilot who was also seriously injured was airlifted to hospital but discharged a few days later.

1.13.4 According to the Medico-Legal autopsy report, the cause of death of the passenger was due to Multiple Blunt Force Injuries.

1.13.5 The Carbon Monoxide was found normal. The Toxicology and Histology report were still not available at the time of compiling this report.

### **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 determined to be not survivable due to the destruction of the aircraft. The aircraft collided with high tension wires causing substantial damage to the wing structure and rendered the aircraft uncontrollable.

1.15.2 Although the pilot and passenger were properly restrained with the aircraft seat safety belts, both the pilot and passenger were thrown out of their seats during the impact sequence with the rough and rocky ground surface. During the impact with the ground surface, the pilot and passenger sustained serious injuries.

1.15.3 The pilot and passenger received CPR medical treatment at the accident site. The pilot was air lifted to a hospital for further medical treatment but the passenger succumbed to her injuries at the accident site.

### **1.16 Tests and Research**

1.16.1 None.

## **1.17 Organizational and Management Information**

- 1.17.1 The owner/pilot operated the aircraft privately in Non Type Certificated Operating Category which was in accordance with CAR, Part 24 and 94. The aircraft was operated from Crosswinds Airfield according to the flight folio.
- 1.17.2 The aircraft was maintained by an Approved Person (AP) which was appropriately authorised and rated to carry out maintenance on the aircraft type. There was no maintenance related anomalies identified with the performance of the aircraft.

## **1.18 Additional Information**

- 1.18.1 During an interview with the pilot, he stated that he was distracted by somebody on the ground whilst the aircraft was descending on an approach to Orient Airfield and collided with the high tension wires and subsequently crashed.
- 1.18.2 In an interview with the SAPS, the pilot stated he flew the aircraft at an average altitude in Krugersdorp area on the day of the accident. However, on the return flight to Crosswinds Airfield, he decided to fly overhead Orient Airfield as he was familiar with the area. All that he could remember was when he positioned the aircraft to fly over the airfield.
- 1.18.3 The aircraft accident investigator interviewed the pilot after he was released from hospital after a few days in hospital. The investigator requested the pilot numerous times after the accident occurred to complete the Owner and Pilot's questionnaires, but to no avail. The investigator then decided to complete the aircraft accident report without the relevant questionnaires.
- 1.18.4 Based on the evidence, the pilot did not comply with the requirements of CAR, Part 91.06.32 (1)(b) that states:
- (1) Except when necessary for taking off or landing, or except with prior written approval of the Commissioner, no aircraft –
  - (b) when flown elsewhere than specified in paragraph (a), shall be flown at a height less than 500 feet above the ground or water, unless the flight can be made without hazard or nuisance to persons or property on the ground or water, unless the flight can be made without hazard or nuisance to persons or property on the ground or water.

Note: The aircraft was flown by the pilot at an altitude, which was well below 500 feet with high tension wires spanned across the open area.

### 1.18.5 Aircraft Performance:

- (i) According to the aircraft flight manual (AFM), the performance specification at cruise speed of the aircraft is determined to be between 65 to 100 kilometres per hour (km/hour). The maximum allowable flying speed is 140 km//hour.
- (ii) The pilot did not experience any aircraft performance and/or engine operation defect during the flight at the time of the accident.

## 1.19 Useful or Effective Investigation Techniques

1.19.1 None.

## 2. ANALYSIS

- 2.1 The pilot who was also the owner of the microlight aircraft was first accompanied by a passenger, aged 10 years, on a scenery flight at 0515Z from Crosswinds airfield to the Krugersdorp general flying area (GFA) after he refuelled the aircraft to full capacity of 50 litres. The pilot reported that the flight was uneventful and after flying for approximately 30 minutes the aircraft landed safely back at Crosswinds airfield at approximately 0545Z.
- 2.2 At approximately 0555Z, the pilot accompanied by a female passenger departed Crosswinds airfield on the second scenic flight to the GFA of the day. After take-off, the pilot and passenger flew overhead the “Cradle of Humankind” and shortly thereafter, overhead “Lion & Rhino Park Nature Reserve”, including the “Sterkfontein Caves”.
- 2.3 The accident occurred when the pilot descended to a very low level above the ground toward Tarlton Oak, when the aircraft collided with high tension wires which spanned across an open field.
- 2.4 The pilot who was seriously injured was airlifted to hospital when the medical services arrive at the accident site. The female passenger, who was fatally injured, succumbed to her injuries at the accident site.
- 2.5 The aircraft was substantially damaged on impact with the high tension wires and rough rocky ground terrain.
- 2.6 During the on-site investigation, the aircraft was thoroughly examined but there was no evidence of a defect or malfunction that may have contributed to the cause of the accident. The three-bladed propeller showed that the engine was producing sufficient power prior to the impact sequence. The pilot also confirmed that he did not experience any defects malfunctioning during the flight.

### **3. CONCLUSION**

#### **3.1 Findings**

- 3.1.1 The pilot had a valid National (Microlight) Pilot License. The aircraft type rating was endorsed on the license.
- 3.1.2 The pilot had a valid Class 4 aviation medical certificate without any restrictions. The pilot did not have any medical condition which may have prevented him from flying the aircraft on the day of the accident.
- 3.1.3 The pilot accompanied by a passenger was engaged on a private scenic flight flown under Visual Flight Rules (VFR) by day from Crosswinds Airfield in Krugersdorp area when the accident occurred.
- 3.1.4 According to available evidence at the accident site, the pilot flew very low above ground level towards Tarlton Oaks and collided with high tension wires spanned across an open field at a height of approximately 12 metres (33ft) above ground level (AGL).
- 3.1.5 The high tension wires were subsequently severed when the aircraft impacted the wires during a low level flight.
- 3.1.6 The aircraft wings, airframe structure and propeller were substantially damaged during the impact sequence with the high tension wires and the rocky terrain.

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

- 3.2.1 The aircraft collided with high tension wires during a low level flight.

Contributory Factors

- 3.2.3 Not maintaining safe altitude.

### **4. SAFETY RECOMMENDATIONS**

- 4.1 None.

### **5. APPENDICES**

- 5.1 None.



Compiled by:

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**For: Director of Civil Aviation**

Date: .....

Investigator-in-charge: .....

Date: .....

Co-Investigator: .....

Date: .....