



# AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8486	
<b>Aircraft Registration</b>	<b>ZS-MSR</b>	<b>Date of Accident</b>	26 April 2008		<b>Time of Accident</b>	1100Z
<b>Type of Aircraft</b>	CESSNA T210L (Aeroplane)		<b>Type of Operation</b>		Private	
<b>Pilot-in-command Licence Type</b>		Private	<b>Age</b>	40	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>		Total Flying Hours	109.2		Hours on Type	Unknown
<b>Last point of departure</b>		Krokodilspuit Farm, Private Aerodrome (near Cullinan) in Gauteng Province				
<b>Next point of intended landing</b>		Volksrust Aerodrome				
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
Krokodilspuit near Cullinan GPS: Position: S25° 33' 799" E028° 26' 395"						
<b>Meteorological Information</b>		Surface Wind: 270° / 5kts; Temperature: 22°C; Visibility: >10km				
<b>Number of people on board</b>	1 + 2	<b>No. of people injured</b>	1	<b>No. of people killed</b>	2	
<b>Synopsis</b>						
<p>The pilot, accompanied by two passengers, was taking off from a private aerodrome Krokodilspuit Farm near Cullinan in the Gauteng Province with the intention to fly to Volksrus on a private flight at approximately 1100Z. During the take-off roll the aircraft veered to the left and departed from the runway. The left-hand main gear climbed the mound before the left wing collided with a tree which was on top of the mound next to the runway. Both the left-hand main gear and wing broke off. The aircraft caught alight after coming to a halt, following impact with the tree, and was destroyed.</p> <p>The pilot and one of the passengers died on the scene while the other passenger was admitted to hospital.</p>						
<b>Probable Cause</b>						
<p>Loss of directional control during the take-off roll, resulting in the aircraft departing from the runway and colliding with a tree before bursting into flames.</p> <p><b>Contributory Factor:</b></p> <p>The pilot had limited experience on the aircraft type.</p> <p>Runway condition.</p>						
IARC Date				Release Date		



## AIRCRAFT ACCIDENT REPORT

**Name of Owner** : Mr H Jansen Van Rensburg  
**Name of Operator** : Private  
**Manufacturer** : Cessna Aircraft Company  
**Model** : T210L  
**Nationality** : South Africa  
**Registration Marks** : ZS-MSR  
**Place** : Krokodilspruit Farm  
**Date** : 26 April 2008  
**Time** : 1100Z

*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 the 25<sup>th</sup> of April 2008 the pilot, accompanied by a co-pilot, took off from the Krokodilspruit Farm to Wonderboom aerodrome (FAWB) to fit a new battery to the aircraft. After landing at FAWB they discovered that the left main gear tire had two flat spots and they also changed it. The aircraft took off again from FAWB to Schweize Renecke and back to FAWB. The aircraft was refuelled at FAWB before it was flown back to Krokodilspruit Farm.

1.1.2 On the 26<sup>th</sup> of April 2008, the fateful day, the aircraft was to take off from Krokodilspruit Farm to Volksrust aerodrome. The pilot and two passengers were on board. The intention was to fly to Volksrus to drop off one of the passengers (the pilot's son). During the take-off, the aircraft veered to the left of the runway and departed from the runway surface before the left wing collided with a tree and the aircraft burst into flames. One of the passengers managed to escape from the aircraft, although he was engulfed in flames. That passenger was instructed by a witness to lie down and roll on the ground to extinguish the flames on his body.

#### 1.1.3 Witnesses statements:

(a) The passenger (witness 1) who survived the accident verbally stated that during the take-off roll he was looking down in the cockpit and next the aircraft lifted off the ground. The pilot then abandoned the control stick/yolk and asked him (passenger)

for help, however it was too late for him to take control of the aircraft. This witness is also a pilot and during this flight he was a passenger. The witness applied left rudder and the left-hand wing made contact with the tree before impacting with the ground. The passenger jumped out of the aircraft and escaped with serious burn injuries.

- (b) The witness (2) who was at the threshold of the take-off runway, reported that he heard the sound of the aircraft as it was due for take-off. He looked into the direction of the aircraft to witness the take-off. The aircraft was not clearly visible but the witness could manage to see the aircraft during the take-off roll. He followed the movement of the aircraft.

The engine sound was normal but the speed was too low. When the aircraft was in the vicinity of the tree next to the runway, the witness saw a lot of dust. The witness jumped into his vehicle and drove to the scene. On arrival he found that the aircraft was covered in flames.

- (c) The witness (3) who was sitting on the side of the runway approximately in the middle stated that, during the take-off roll, the aircraft looked as if it was dragging in the sand. It looked like the left-hand main wheel was not turning while the right - hand wheel was turning. As the aircraft went past the witness it changed direction and went up the embankment on the left-hand side of the runway. The aircraft collided with the tree next to the runway. After the collision the aircraft impacted with the ground before bursting into flames.

The witness ran towards the aircraft and saw the passenger escaping from the aircraft on the right-hand side. He asked the passenger where the other passengers were and the passenger pointed to the burning aircraft. The witness shouted to the passenger to roll on the grass. Due to the intense heat of the flames, the witness could not help to rescue the passengers.

- (d) The witness (4) reported that he was at the beginning of the runway to witness the take-off. He reported that the right-hand wing lifted, then the left-hand wing collided with a tree next to the runway. The aircraft caught fire and impacted with the ground. He drove to the scene and on arrival he found that the aircraft was covered in flames.
- (e) The witness (5) reported that she was sitting in the vehicle waiting to witness the take-off. She then followed the aircraft at the beginning of the runway and waited for the aircraft to take off. The aircraft started the take-off roll but was not airborne at the point where they normally lift off. The aircraft veered off to the left of the runway and collided with a tree next to the runway.

## 1.2 Injuries to Persons

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

### 1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed during the impact sequence and by post-impact fire.



Figure 1 shows damage to the aircraft.

### 1.4 Other Damage

1.4.1 Minor damage to vegetation and the tree into which the aircraft collided.

### 1.5 Personnel Information

Nationality	RSA	Gender	Male	Age	40
Licence Number	*****	Licence Type	Private		
Licence valid	Yes	Type Endorsed	No		
Ratings	Nil				
Medical Expiry Date	31 March 2009				
Restrictions	Nil				
Previous Accidents	Nil				

Flying Experience:

The following information has been obtained from the SACAA's pilot file. As on 22 April 2005, the pilot had the following hours for his Microlight pilot's licence:

Aircraft type	Dual	Pilot
Microlight Raptor	0.5	0.0
Microlight Aquilla	32.6	19.8

As on 03 September 2007, the pilot had the following hours for his application for a private pilot's licence:

Aircraft type	Dual	Pilot
PA28	15.1	17.8
Jabiru	16.3	2.4

As on November 2007 the pilot had the following hours:

Aircraft type	Dual	Pilot
Cessna 210	4.7	0.0

Total Hours	109.2
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

N.B: On the day of the accident the burnt pieces of the logbooks were recovered from the site. The information available from the SACAA does not indicate that the pilot was rated, although he had 4.7 hours on dual. The hours currently reflected in the column above is for the year 2007. The flying experience hours of 2008 could not be obtained. According to his wife, the pilot had flown 4.5 hours in the last seven days.

Following the interview with the Aviation Training Organisation (ATO), it was found that the pilot had completed conversion training sessions on the following days: 20, 21 and 27 November 2007, however no evidence of a convex or technical examination was on file at the time of the interview after the accident. Based on the statement above, the ATO concluded that the conversion training was not completed.

## 1.6 Aircraft Information

### Airframe:

Type	Cessna T210L	
Serial Number	210-60707	
Manufacturer	Cessna Aircraft Company	
Year of Manufacture	1975	
Total Airframe Hours (At time of Accident)	Unknown	
Last MPI (Date & Hours)	21 February 2008	5144.2
Hours since Last MPI	Not known	
C of A (Issue Date)	14 July 1999	
C of R (Issue Date) (Present owner)	21 November 2002	
Operating Categories	Standard	

Note: The following hours on both the engine and the propeller were obtained from the aircraft file on the last record of the last Mandatory Periodic Inspection (MPI). The hours since new could not be obtained from the aircraft file or the aircraft log book. The flight folio and the pilot log book were reported to have been burned during the accident.

**Engine:**

Type	Continental
Model	TSIO 520-H
Serial Number	506343
Hours since New	Not applicable
Hours since Overhaul	500,2

**Propeller:**

Type	McCauley
Model	D3A32C88-M
Serial Number	020205
Hours since New	503.3
Hours since Overhaul	TBO not reached

**1.7 Meteorological Information:**

1.7.1 The weather information was obtained from the South African Weather Services:

Wind direction	270°	Wind speed	5kts	Visibility	>10km
Temperature	22°C	Cloud cover	Nil	Cloud base	Nil
Dew point	02°C				

**1.8 Aids to Navigation:**

1.8.1 The aircraft was fitted with standard navigational instrument equipment as approved by the regulator for this aircraft type. No abnormalities were reported prior to the accident.

**1.9 Communications:**

1.9.1 The pilot was operating in an unmanned area. It is not known if he was transmitting or not. The place of the accident falls within the boundaries of the Pretoria general flying area No.2 with transmission on the VHF frequency 124.4 MHz.

1.9.2 The aircraft was fitted with standard communication equipment as approved by the regulator for this aircraft type. No abnormalities were reported prior to the accident.

## 1.10 Aerodrome Information:

Aerodrome Location	Krokodilspruit Private Aerodrome near Cullinan in Gauteng
Aerodrome Co-ordinates	S25° 33' 799" E028° 26' 395"
Aerodrome Elevation	4015
Runway Designations	11/29
Runway Dimensions	800mx13m
Runway Used	29
Runway Surface	Gravel
Approach Facilities	Nil

- 1.10.1 There is a dam situated to the left-hand side of the runway. When the dam is full, the excess water runs across the runway, approximately 450 m from the beginning of the runway. The surface of the runway where the water runs across the runway is hard with a little loose sand. Just after the water path, there was a fair amount of loose sand on the runway. This is also the point where the aircraft start to veer to the left.



## 1.11 Flight Recorders:

- 1.11.1 The aircraft was not equipped with a Cockpit Voice Recorder (CVR) or a Flight Data Recorder (FDR). Neither recorder was required by regulation to be fitted to this aircraft type.

## 1.12 Wreckage and Impact Information:

- 1.12.1 The aircraft took off on a gravel runway. It lost directional control, got airborne, and the left-hand wing collided with a tree before impacting with the ground. A post-impact fire erupted and destroyed the aircraft. The distance from the beginning of

the runway to the point where the aircraft impacted with the tree was approximately 585 m. From the tree to the wreckage, the distance was approximately 53.6 m. The runway length was approximately 800 m.

1.12.2 The on-site investigations revealed no anomalies regarding the control surfaces, control cables, engine and airframe which could have occurred prior to the impact.



Figure 2 above indicates the runway used for take-off.

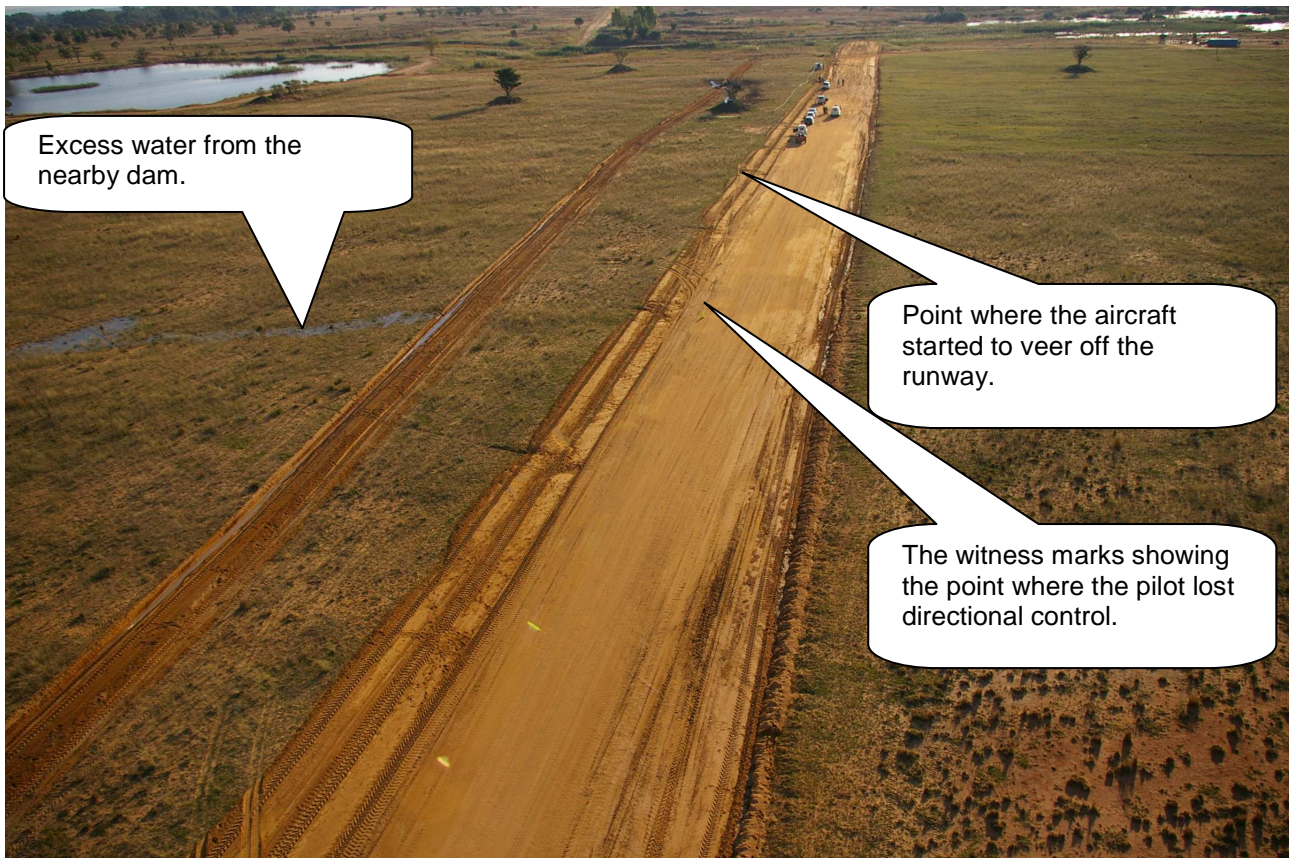


Figure 2 shows the point where the aircraft began to lose directional control.

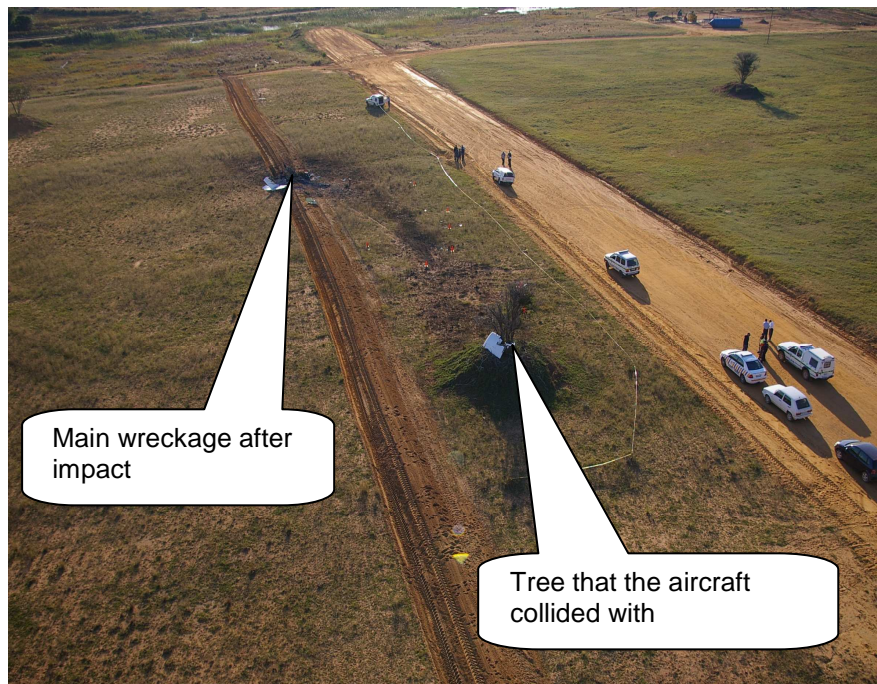


Figure 3 indicates the gravel road which was parallel to the runway and the tree with which the aircraft collided.



Figure 4 above indicates the separated/failed wing of the aircraft after colliding with the tree.



Figure 5 above indicates the main wreckage of the aircraft.

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

1.13.1 According to the post-mortem report, the cause of death was burn injuries sustained due to the fire.

1.13.2 The toxicological report revealed that the carbon monoxide saturation of the haemoglobin in the blood specimen that was taken, was 1.2%. The specimen contained 22.5 µg/litre cyanide. According to the medical professionals the specimen was normal.

### **1.14 Fire**

1.14.1 A post-impact fire ensued and destroying the aircraft. The fuel spilled during the impact sequence and caught alight. This was a private aerodrome with no fire rescue services available.

### **1.15 Survival Aspects**

1.15.1 The accident was considered not survivable, due to the rate at which the fire erupted and non-availability of emergency personnel at the aerodrome.

## **1.16 Tests and Research**

### **1.16.1 Engine**

The engine, a Continental TSIO 520-H , serial number 506343 was removed from the wreckage and was subjected to a tear-down inspection at an approved engine overhaul facility. The engine components could not be inspected due to severe fire damage. The engine was inspected and no damage was found.

## **1.17 Organisational and Management Information**

1.17.1 This was a private flight.

1.17.2 The Aircraft Maintenance Organisation (AMO) that had certified the last maintenance inspection on the aircraft prior to the accident was in possession of a valid AMO approval certificate.

## **1.18 Additional Information**

1.18.1 The instructor and the person who had flown with the deceased pilot on the day before the accident, mentioned that the pilot had the tendency of keeping his heels on the floor of the aircraft when operating the rudders. He was used to lifting his heels off the floor.

1.18.2 During the landing at Wonderboom on the day before the accident, the pilot had applied the brake hard on the left-hand side, resulting in the replacement of the left-hand landing gear tyre. After the landing, two “flat spots” were observed on the tyre.

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

1.19.1 None.

## **2. ANALYSIS**

### **2.1 Man**

The pilot was correctly licensed and was the holder of a valid medical certificate with no restrictions. Post-mortem results revealed that the cause of death was burn injuries. Although the operator stated that the pilot had completed the conversion training on 20, 21 and 27 November 2007, there was no proof of a written technical examination, which is something that the operator (ATO) was supposed to file in the pilot's file.

According to the pilot's instructor and the passenger who flew with the pilot previously, the pilot had a tendency to not relax his heels on the floor whilst controlling rudder pedals. This was also evident after landing at FAWB when he applied hard braking to the left side, resulting in two flats spots and the tire replacement.

It is probable that during the take-off roll, the aircraft may have lost directional control due to the condition of the runway. As the pilot attempted to correct the problem by using the rudder pedals, he inadvertently applied the left brake, resulting in the aircraft departing the runway.

## 2.2 Machine

Examination of the wreckage revealed no deficiencies with the engine or airframe which may have occurred prior to impact. The aircraft was totally destroyed by the post-impact fire.

## 2.3 Environment

The available information revealed that fine weather conditions prevailed in the area at the time of the accident. It is therefore concluded that weather was not a factor or had any bearing on the accident.

The runway condition was such that it had wet areas as a result of excess water from the nearby dam. It also had hard surfaces. This may have resulted in the aircraft losing traction on the left-hand gear and the aircraft veering to the left.

# 3. CONCLUSION

## 3.1 Findings

3.1.1 The pilot had a valid licence but there is no proof that the pilot was rated on the aircraft type. The pilot had a valid medical certificate with no restrictions.

3.1.2 The maintenance records indicated that the aircraft was equipped and maintained in accordance with existing regulations.

3.1.3 There was no evidence of airframe, engine or system malfunction prior to the accident.

3.1.4 The weather was reported to have been fine at the time of the accident.

3.1.5 The Aircraft Maintenance Organisation (AMO) that had certified the last maintenance inspection on the aircraft prior to the accident was in possession of a valid AMO approval certificate.

3.1.6 The type of flight was private and there were three occupants on board.

3.1.7 The pilot lost control during the take-off roll and veered to the left of the runway.

3.1.8 The witness stated that the pilot-in-command let go of the controls.

3.1.9 The left wing collided with the tree which was next to the runway, and separated from the aircraft.

3.1.10 The fuel started spilling from the aircraft from the point at the tree to the point where

the aircraft impacted with the ground and then the aircraft burst into flames.

- 3.1.11 The ATO which had given conversion training to the pilot could not prove his competency and had no records to prove competency of the pilot.

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

- 3.2.1 Loss of directional control during the take-off roll, resulting in the aircraft departing the runway and colliding with a tree before bursting into flames.

- 3.2.2 Contributory Factor:

The pilot had limited experience on the aircraft type.

Condition of the runway.

## **4. SAFETY RECOMMENDATIONS**

- 4.1 It is recommended that the CCA should develop minimum standards to be adhered to by all owners of non-registered/licensed aerodromes.

## **5. APPENDICES**

- 5.1 None.

Report reviewed and amended by the Advisory Safety Panel on 19 January 2010

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