



AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference	CA18/2/3/8579	
Aircraft Registration	ZS-WRF	Date of Accident	12 November 2008		Time of Accident	0715Z
Type of Aircraft	Beaver RX 650		Type of Operation		Private	
Pilot-in-command Licence Type		Microlight	Age	54	Licence Valid	Yes
Pilot-in-command Flying Experience		Total Flying Hours	473.3		Hours on Type	Unknown
Last Point of Departure		Henley Airfield, Gauteng				
Next Point of Intended Landing		Henley Airfield, Gauteng				
Location of the Accident Site with Reference to Easily Defined Geographical Points (GPS readings if possible)						
Plot 25, Klipview, Randvaal (GPS co-ordinates: S26°28.579' E028°03.086')						
Meteorological Information		Wind 340°TN at 5 kts, temperature 21°C, visibility 10 km				
Number of People on Board		1 + 1	No. of People Injured	0	No. of People Killed	2
Synopsis						
<p>On 15 November 2008, the pilot and a passenger took off on a local private flight from Henley Private Aerodrome with the intention of landing back at Henley Private Aerodrome.</p> <p>It was reported that the aircraft was doing a low fly-past within the perimeter of plot 25 in Klipview, Randvaal, when the nose pitched up as if the pilot was attempting to fly over the power lines. The left wing flipped down and contacted the ground. The aircraft lost directional control and crashed. The pilot was fatally injured and the passenger was seriously injured. The passenger was taken to hospital where he died a few days later as a result of the injuries sustained in the accident.</p> <p>The investigation concluded that the aircraft stalled at a low altitude, resulting in the pilot losing control.</p>						
Probable Cause						
<p>The accident was attributed to the aircraft stalling at a low altitude, resulting in the pilot losing control.</p>						
IARC Date				Release Date		



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Lloyd PM
Manufacturer : Beaver Enterprises LTD
Model : Beaver RX 650
Nationality : South African
Registration Marks : ZS-WRF
Place : Randvaal, Gauteng
Date : 12 November 2008
Time : 0715Z

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 two hours.

Purpose of the Investigation:

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (1997), this report was compiled in the interests of the promotion of aviation safety and the reduction of the risk of aviation accidents and 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 15 November 2008, the pilot and a passenger took off on a local private flight from Henley Private Aerodrome with the intention of landing back at Henley Private Aerodrome.
- 1.1.2 An eye witness, who was working inside plot 25, Klipview, stated that the aircraft came from an easterly direction towards a westerly direction and did a low fly-past over the house. When the aircraft was overhead the house, the witness greeted the pilot and the aircraft flew to the end of the runway where it turned in an easterly direction.
- 1.1.3 When the aircraft was halfway over the runway and at a height level to the house, the nose pitched up as if the pilot was attempting to fly over the power lines. The left wing flipped down and contacted the ground. The aircraft lost directional control and crashed. The pilot was fatally injured and the passenger was seriously injured. The passenger was taken to hospital where he died a few days later as a result of injuries sustained in the accident.
- 1.1.4 The pilot was the friend of the owner of the plot and on weekends he usually flew the aircraft from Henley Private Aerodrome and would land on the gravel/grass runway inside the plot. After chatting to the plot owner, the pilot would take off again. The neighbours were used to hearing or seeing the aircraft on Saturday mornings.

1.1.5 The accident occurred inside plot 25, Klipview, Randvaal (Gauteng) in daylight conditions.

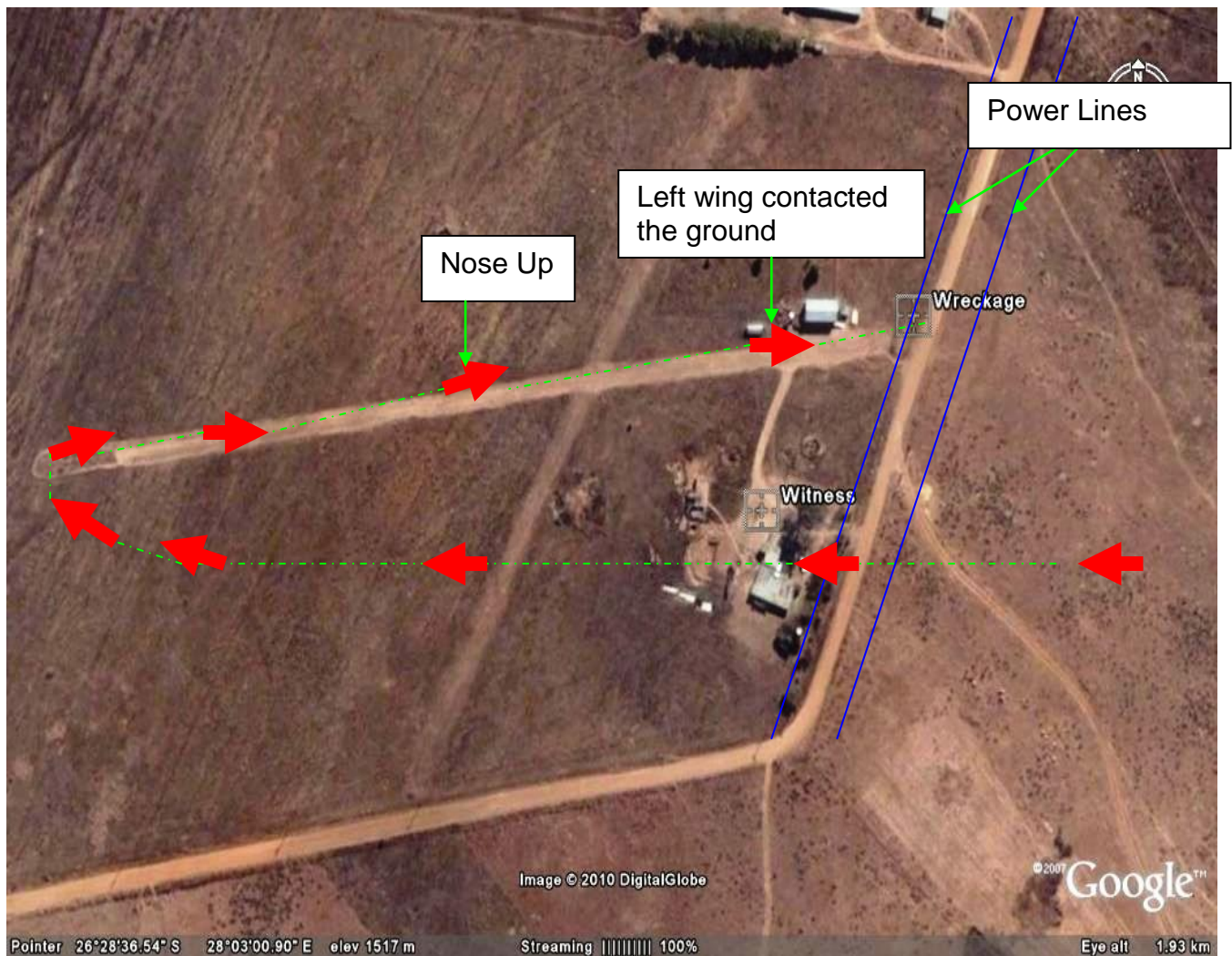


Figure 1: The approximate flight path, position of the witness and wreckage

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed.



Figure 2: Damage to the aircraft

1.4 Other Damage

1.4.1 There was damage to the perimeter fence.

1.5 Personnel Information

1.5.1 Pilot-in-command:

Nationality	South African	Gender	Male	Age	54
Licence Number	*****	Licence Type	Microlight		
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	21 March 2009				
Restrictions	Must wear suitable corrective lenses				
Previous Accidents	None				

1.5.2 Pilot-in-command Flying Experience:

The pilot logbook could not be located during the course of the investigation. According to the CAA records, the pilot had 473.3 hours during his last licence renewal on 22 March 2007.

Total Hours	473.3
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

1.6 Aircraft Information

1.6.1 Airframe:

Type	Beaver RX 650	
Serial Number	BRX6-0041	
Manufacturer	Beaver RX Enterprises Canada	
Date of Manufacture	1991	
Total Airframe Hours (At Time of Accident)	996	
Last Annual Inspection (Date & Hours)	20 December 2007	978.04
Hours Since Last Annual Inspection	17.96	
Authority to Fly (Issue Date)	21 December 2007	
C of R (Issue Date) (Present Owner)	21 May 2007	
Operating Categories	Private	

1.6.2 Engine:

Type	Rotax 618
Serial Number	4254237
Hours Since New	996
Hours Since Overhaul	TBO not yet reached

1.6.3 Propeller:

Type	Precision 3 Blade Wood
Serial Number	DL01
Hours Since New	Unknown
Hours Since Overhaul	Not Applicable

1.7 Meteorological Information

1.7.1 The information below was supplied by the South African Weather Services:

Wind Direction	340°TN	Wind Speed	5 kts	Visibility	10 km
Temperature	21°C	Cloud Cover	None	Cloud Base	None
Dew Point	13°C				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation instrumentation as per manufacturer's design. None was reported unserviceable during the flight or prior to the accident.

1.9 Communications

1.9.1 The aircraft was equipped with very high frequency (VHF) equipment and none was reported unserviceable during the flight or prior to the accident.

1.10 Aerodrome Information

1.10.1 The accident occurred inside plot 25, Klipview, Randvaal. The GPS co-ordinates were determined as S26°28.579' E028°03.086', and elevation was 4 915 ft above mean sea level (AMSL).

1.10.2 The pilot was familiar with the aerodrome.

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with any flight recorders and it was not a regulatory requirement for it to be equipped.

1.12 Wreckage and Impact Information

1.12.1 When the aircraft was halfway over the runway and at the approximate height of a house, the nose pitched up as if the pilot was attempting to fly over the power lines. The left wing flipped down and contacted the ground. The aircraft lost directional control and crashed into the ground on its left-hand side, and was stopped by the perimeter fence. The distance from where the wing first made contact with the ground to the main wreckage was approximately 25 m.

1.12.2 The cabin area was destroyed, the engine separated from the airframe and both the wings were destroyed.



Figure 3: The wreckage site and damage to aircraft

1.13 Medical and Pathological Information

1.13.1 Pilot:

1.13.1.1 According to the forensic pathologist post-mortem report, the cause of death was determined to be multiple blunt force injuries.

1.13.1.2 Forensic chemistry submitted revealed no evidence of alcohol consumption, with the alcohol concentration of 0.00 g per 100 ml.

1.13.2 Passenger:

1.13.2.1 According to the forensic pathologist post-mortem report, the cause of death was determined to be complications following multiple injuries.

1.13.2.2 No blood was submitted for forensic chemistry.

1.14 Fire

1.14.1 There was no pre- or post-impact fire.

1.15 Survival Aspects

1.15.1 Although both the pilot and passenger did use the safety harnesses, the destruction of the cabin area meant they were exposed to the impact forces associated with the accident, therefore the accident was considered not survivable.

1.16 Tests and Research

1.16.1 During the on-site investigation, all the control surfaces were inspected and found intact except for accident damage. The airframe was also inspected and all the noted damage was found to be consistent with accident damage.

1.16.2 The assessment of the accident site and the propeller scratch marks indicated that the aircraft engine was running when the accident occurred.

1.17 Organisational and Management Information

1.17.1 This was a private flight.

1.17.2 The approved person (AP) who certified the last annual inspection on the aircraft prior to the accident had a valid approval and had authority to perform maintenance on the aircraft type.

1.18 Additional Information

1.18.1 Below are articles on stalls and spins as obtained from the Wikipedia website ([http://en.wikipedia.org/wiki/Spin_\(flight\)](http://en.wikipedia.org/wiki/Spin_(flight))):

A stall is a condition in aerodynamics and aviation where the angle of attack increases beyond a certain point such that the lift begins to decrease. The angle at which this occurs is called the critical angle of attack. This critical angle is dependent upon the profile of the wing, its plan form, its aspect ratio and other factors, but is typically in the range of 8 to 20 degrees relative to the incoming wind for most subsonic airfoils. The critical angle of attack is the angle of attack on the lift coefficient versus the angle-of-attack curve at which the maximum lift coefficient occurs.

Flow separation begins to occur at small angles of attack while attached flow over the wing is still dominant. As angle of attack increases, the separated regions on the top of the wing increase in size and hinder the wing's ability to create lift. At the critical angle of attack, separated flow is so dominant that further increases in angle of attack produce less lift and vastly more drag.

During a stall, a fixed-wing aircraft may experience buffeting or a change in attitude (normally nose down in g aircraft). Most aircraft are designed to have a gradual stall with characteristics that will warn the pilot and give the pilot time to react. For example, an aircraft that does not buffet before the stall may have an audible alarm or a stick shaker installed to simulate the feel of a buffet by vibrating the stick fore and aft. The 'buffet margin' is, for a given set of conditions, the amount of 'g' that can be imposed for a given level of buffet. The critical angle of attack in steady, straight and level flight can only be attained at low airspeed. Attempts to increase the angle of attack at higher airspeeds can cause a high-speed stall or may merely cause the aircraft to climb. Any yaw of the aircraft as it enters the stall regime can result in autorotation, which is also sometimes referred to as a spin. Because air no longer flows smoothly over the wings during a stall, aileron control of roll becomes less effective, whilst simultaneously the tendency for the ailerons to generate adverse yaw increases. This increases the lift from the advancing wing and accentuates the probability of the aircraft entering into a spin.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 The pilot had 473.3 total flying hours and the type was endorsed on his licence. He had no previous incidents or accidents. His aviation medical certificate was also valid.

2.2 There was no evidence of maintenance anomalies and/or defects reported by the pilot or instructor, which were experienced with the aircraft prior to the flight. The aircraft flew without any problem for approximately 17.96 airframe hours since the last inspection was certified.

2.3 The on-site evidence and eye-witness statement suggested that the aircraft might have stalled at a low altitude (the nose pitched up and the left wing dropped). The left wing made contact with the ground, resulting in the pilot losing control and crashing into the ground.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot was licensed and qualified for the flight in accordance with existing regulations.
- 3.1.2 The maintenance records indicated that the aircraft was equipped and maintained in accordance with existing regulations and approved procedures.
- 3.1.3 The aircraft stalled at a low altitude resulting in the pilot losing control.
- 3.1.4 Weather was not considered a factor in this accident.

3.2 Probable Cause/s

- 3.2.1 The accident was attributed to the aircraft stalling at a low altitude, resulting in the pilot losing control.

4. SAFETY RECOMMENDATIONS

- 4.1 None.

5. APPENDICES

- 5.1 None.

Report reviewed and amended by the Advisory Safety Panel on 20 April 2010.

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