SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Accident and Incident Investigations Division** Form Number: CA 12-12a

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/1003		
Aircraft Registration	**ZU-FKU**	**Date of Accident**	21 September 2013		**Time of Accident**	1300Z	
Type of Aircraft	Cheetah XLS		**Type of Operation**		Private		
Pilot-in-command Licence Type	Microlight and Private Pilot's Licence		**Age**	23	**Licence Valid**	Yes	
Pilot-in-command Flying Experience	Total Flying Hours		155,0		Hours on Type	94,5	
Last point of departure	Hazyview Aerodrome, Mpumalanga						
Next point of intended landing	Hazyview Aerodrome, Mpumalanga						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Numbi Hotel airstrip in Hazyview (co-ordinates: S25° 03′ 00″ E031° 08′ 00″)							
Meteorological Information	Surface wind: 280°/13kt; Visibility: greater than 10km; Temperature: 20°C; Cloud cover: Overcast; Cloud base: 3 000ft AGL						
Number of people on board	1 + 1	**No. of people injured**	0	**No. of people killed**	0		

Synopsis

The pilot and passenger were on a private local flight when the accident occurred. The pilot reported that during landing on runway 19 at Numbi Hotel airstrip, the aircraft was pushed to the left of the centreline by a crosswind and subsequently touched down slightly left of the runway. The microlight bounced several times and collided with the electric perimeter fence.

The aircraft sustained substantial damage.

The occupants were not injured in the accident.

This was an off-site investigation.

Probable Cause

Loss of directional control during a crosswind landing

Contributory Factor:

Poor crosswind technique.

IARC Date		Release Date	

AIRCRAFT ACCIDENT REPORT

Name of Owner : Botha T and Loots H Partnership
Name of Operator : Private
Manufacturer : Rainbow Aircraft (Pty) Ltd
Model : Cheetah XLS
Nationality : South African
Registration Marks : ZU-FKU
Place : Numbi Hotel Airstrip in Hazyview
Date : 21 September 2013
Time : 1300Z

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

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1. FACTUAL INFORMATION

1.1 History of Flight

1.1.1 The pilot and passenger were on a private local flight when the accident occurred. During landing on runway 19, the aircraft touched down slightly left of the runway. It bounced several times, collided with a perimeter fence and came to rest.

1.1.2 Both pilot and passenger evacuated the aircraft unassisted. The microlight sustained damage to the left wing and propeller.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft sustained substantial damage.

1.4 Other Damage

1.4.1 The perimeter fence of the aerodrome was damaged.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	23
Licence Number	0272233099	Licence Type		Microlight and Private Pilot's Licence (Aeroplane)	
Licence valid	Yes	Type Endorsed		Yes	
Ratings	Night rating				
Medical Expiry Date	11 September 2014				
Restrictions	None				
Previous Accidents	None				

Flying Experience

Total Hours	155
Total Past 90 Days	7,3
Total on Type Past 90 Days	7,3
Total on Type	94,5

1.6 Aircraft Information

Airframe

Type	Cheetah XLS	
Serial Number	CH114	
Manufacturer	Rainbow Aircraft (Pty) Ltd	
Date of Manufacture	Unknown	
Total Airframe Hours (At time of Accident)	364,0	
Last MPI (Date & Hours)	24 January 2013	271,2
Hours since Last MPI	92,8	
Authority To Fly (Expiry Date)	23 January 2014	
C of R (Issue Date) (Present owner)	8 August 2010	
Operating Categories	Standard Part 91	

Engine

Type	Rotax 912
Serial Number	4406756
Hours since New	364,0
Hours since Overhaul	TBO not reached

Propeller

Type	P-prop
Serial Number	N2345FEC2G4
Hours since New	364,0
Hours since Overhaul	TBO not reached

Weight and Balance (in pounds (lb))

Basic Empty Weight	688
Pilot and Passengers	408
Fuel on board	88
Take-off weight	1 184

The maximum take-off weight for this microlight is 1 235lb. The accident aircraft was therefore within the take-off weight limitation.

1.6.1 The centre of gravity for this flight was calculated to be within the allowable range.

1.6.2 The aircraft had 40ℓ (88lb) of fuel on board, which was sufficient for the flight.

1.7 Meteorological Information

1.7.1 The following weather conditions at the time and place of the incident were obtained from the pilot's questionnaire:

Wind direction	280°	Wind speed	13kt	Visibility	10 000m
Temperature	20°	Cloud cover	Overcast	Cloud base	3 000ft AGL
Dew point	Unknown				

1.7.2 The weather information in the area as reported by the SA Weather Services:

Hazyview weather

Surface observations are not made at Hazyview. In this case, observational data from the reporting neighbouring aerodrome, i.e. Kruger Mpumalanga International Airport (FAKN) is used to estimate the most likely conditions at the time of the incident in the Hazyview area. Information from recorded meteorological weather reports is furnished below:

FAKN (1400 UTC): FAKN (1500 UTC):
Dry-bulb temperature: 15.0 C 14.0 0C
Dew point temperature: 10.0 0C 10.0 0C
Wind direction and speed: 1500 06KT 1700 06KT
Weather phenomenon: Nil Light drizzle
Cloud amount and height: 5 octas at 1500ft & 3 octas at 800ft &
8 octas at 2000ft 8 octas at 1500ft
QNH: 1023hPa 1025hPa

1.7.2 According to the pilot, the wind speed was 13kt and its direction was 280°. The runway used was 190. There was thus a full crosswind of 13kt from the right.

1.7.3 This figure was within the maximum permitted wind speed component of 27, 8 kt (32mph) for landing as per the Cheetah XLS Flight Manual (refer to 1.8. 'Additional Information').

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with the minimum visual flight rules (VFR) navigation equipment required by regulations. There were no recorded defects to the equipment prior to the flight.

1.9 Communications

1.9.1 The aircraft was equipped with standard communication equipment as required by the regulator. There were no recorded defects to the equipment prior to the flight.

1.9.2 The pilot broadcast his intentions on 124.8 MHz, the frequency for unmanned procedures.

1.10 Aerodrome Information

Figure 1: The Numbi Hotel airfield.

Aerodrome Location	Numbi Hotel airstrip	
Aerodrome Co-ordinates	S25˚ 03’ 00". E031˚ 08’ 00”	
Aerodrome Elevation	1 740ft	
Runway Designations	01/19	
Runway Dimensions	850m	
Runway Used	Runway 19 (uphill)	
Runway Surface	Grass	
Approach Facilities	None	

1.10.1 This is a private, unlicensed airfield.

1.10.2 There are powerlines east of the runway and buildings at the end of the runway.

1.10.3 Take-off and landings are permitted in only one direction: runway 19.

1.10.4 Due to the buildings in the vicinity of the airfield and the mountains surrounding the airfield, a variety of wind phenomena are likely to occur around the airfield.

1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a cockpit voice recorder or flight data recorder. Neither was required by regulations to be fitted to this type of aircraft

1.12 Wreckage and Impact Information

1.12.1 The aircraft touched down slightly to the left of the runway in use and bounced. The left wing collided with the perimeter fence.

1.12.1 The aircraft sustained damage to the left wing and propeller.

1.13 Medical and Pathological Information

1.13.1 None

1.14 Fire

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

1.15 Survival Aspects

1.15.1 The accident was considered survivable due to the low kinetic energy associated with the impact.

1.15.2 The pilot and passenger were properly restrained by the aircraft-equipped safety harness.

1.16 Tests and Research

1.16.1 None considered necessary.

1.17 Organisational and Management Information

1.17.1 The aircraft was operated privately by the pilot/owner.

1.17.2 It was maintained by an Approved Person (AP) accredited by RAASA, and the AP was rated on the aircraft.

1.18 Additional Information

1.18.1 The following information was extracted from the Cheetah XLS Pilot's Operating Handbook:

4_2 CROSSWIND LIMITATIONS

Crosswind & Wind Limitations

Maximum permitted wind speed components for take-off and landing:
Maximum headwind - 32mph (27kt)
Maximum crosswind - 32mph
Crosswind take-offs and landings require training and experience, the higher the crosswind component, the better your skill must be. Do not fly without proper experience and training when the wind speeds are near the maximum allowed wind component.
Avoid take-offs & landing with a tail wind. The take offs & landings will be considerably longer than the demonstrated numbers.

Approach in crosswind conditions
Cross-winds will not have a big effect to the flight characteristics of the Cheetah XLS as long as wind speed remains below the maximum permissible speed up to 32mph (27kt). Conducting a crosswind landing does require special skills, If not yet familiar with the aircraft it is recommended to only attempt this exercise when accompanied by an experienced flight instructor, until sufficient experience has been gained.

1.18.2 The following information was extracted from the Airpilot's Manual, Volume 1:

The bounced landing

A bounce can be caused by:

- *A failure to round out sufficiently*
- *Touching down on the nose wheel (possibly caused by looking over the nose);*
- *Touching down too fast*
- *Excessive backward movement of the control column; or*

- *Flaring too high.*

An inexperienced pilot should consider an immediate go-around following a bounce. With experience, however, a successful recovery from a bounce can be made (provided that the runway length is adequate) by relaxing the back pressure and adding power if necessary to reposition the aeroplane suitably to recommence the landing. Avoid pushing the nose down, as a second bounced landing may result. Avoid a second touchdown on the nose wheel – a series of Kangaroo hops down the runway is not a desirable way to land an aeroplane! Prior to touchdown, make sure that the aeroplane is in the correct nose-high attitude (even if it is the second touchdown).

1.19 Useful or Effective Investigation Techniques

1.19.1 None

2. ANALYSIS

2.1 The aircraft was serviceable for the flight and had been maintained in accordance with existing regulations.

2.2 The investigator was unable to obtain weather data at the airfield for use in the investigation. Using the weather information provided by the pilot on the pilot's questionnaire, the calculated crosswind component for this landing was 13kt, which was within the maximum permitted wind speed component of 27,8kt (32mph) for landing. Therefore it could not be established with certainty whether other weather phenomena could have contributed to this accident.

2.3 The pilot was licensed and qualified for the flight in accordance with existing regulations. However, he had flown only a few hours in the three months preceding this flight.

2.4 The landing runway is uphill and the aircraft touched down on the left side of the runway, with the crosswind component within the maximum permitted. This indicates that the pilot used a poor crosswind technique, resulting in loss of directional control of the aircraft.

2.5 The statement made by the pilot that the aircraft had bounced several times after touchdown prior to the collision with the fence, indicates that it had landed at high speed and the pilot had been unable to correct.

3. CONCLUSION

3.1 Findings

3.1.1 The pilot held a valid pilot's licence and a valid aviation medical certificate issued by a CAA-approved medical examiner.

3.1.2 The aircraft was serviceable for the flight and in possession of a valid Authority to Fly Certificate.

3.1.3 At the time of the accident, the aircraft was maintained by an Approved Person, accredited by the SACAA/RAASA.

3.1.4 The weight and balance of the aircraft was below the maximum allowable limits for the aircraft.

3.1.5 It could not be determined with certainty whether weather phenomena could have contributed to the accident.

3.1.6 The runway used is uphill.

3.2 Probable Cause/s

3.2.1 Loss of directional control during a crosswind landing.

3.2.2 Contributory Factor: poor crosswind technique used by the pilot.

4. SAFETY RECOMMENDATIONS

4.1 None

5. APPENDICES

5.1 None