AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8431		
Aircraft Registration	**ZU-ERW**	**Date of Accident**	7 February 2008		**Time of Accident**	1230Z	
Type of Aircraft	Apollo Fox		**Type of Operation**		Private		
Pilot-in-command Licence Type	Microlight		**Age**	38	**Licence Valid**	Yes	
Pilot-in-command Flying Experience	Total Flying Hours		37.9		Hours on Type	Unknown	
Last point of departure	Tempe Aerodrome (FATP)						
Next point of intended landing	Nelspruit Aerodrome (FANS)						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Senekal, Free State Province. GPS co-ordinates: S28˚10.567´ E027˚29.225´							
Meteorological Information	Wind:040°/03kts, Temperature: 28°C, Clouds: SCT at 8500ft AMSL, Dew point: 10°C						
Number of people on board	1 + 1	**No. of people injured**	0		**No. of people killed**	2	

Synopsis

The pilot, accompanied by a passenger, departed from Tempe Aerodrome to Nelspruit Aerodrome on a VFR flight. Witnesses in the Senekal area reported that the aircraft was flying at low level. Both occupants were fatally injured

The investigation concluded that the aircraft collided with trees, the pilot lost control, and the aircraft fell to the ground in a nose-down attitude.

Probable Cause

The aircraft collided with trees, the pilot lost control and the microlight crashed into the ground in a nose-down attitude.

IARC Date		Release Date	

AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : P and R Flights CC
Manufacturer : Halley KFT
Model : Apollo Fox
Nationality : South African
Registration Marks : ZU-ERW
Place : Senekal, Free State Province
Date : 7 February 2008
Time : 1230Z

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 The pilot, accompanied by a passenger (who was also a microlight pilot), departed from Tempe Aerodrome (FATP) to Nelspruit Aerodrome (FANS) on a VFR (visual flight rules) flight.

1.1.2 Witnesses collecting firewood in the Senekal area reported that they saw the aircraft flying very low to the ground. It was approaching from the west and sounded to them like a car. The sound grew louder as the aircraft approached, indicating that the engine appeared to be operating normally. It was unclear to the witnesses why the aircraft could not fly higher. The microlight was later reported to have impacted with the ground nose-first before bursting into flames.

1.1.3 The investigation revealed that the aircraft flew over a maize field and then over rising terrain. At the edge of this, on the track of the microlight, was a copse/row of tall trees, and there was evidence that the aircraft clipped the tops of the trees.

Figure 1. The trees struck by the aircraft.

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 by the impact as well as by post-impact fire.

Figure 2. The wreck of the microlight.

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information (Pilot-in-command)

Nationality	South African	Gender	Male	Age	38
Licence Number	**********	Licence Type	Microlight		
Licence valid	Yes	Type Endorsed	No		
Ratings	None				
Medical Expiry Date	31 August 2010				
Restrictions	Medical restrictions – General				
Previous Accidents	None				

Flying experience:

The following information was obtained from the pilot's file:

He had 22,6 solo flying hours and 15,3 dual flying hours, giving a total of 37,9 flying hours. He was issued with his student pilot's licence on 3 September 2007. He was then issued with a microlight pilot's licence on 23 October 2007 after both examination and practical tests were carried out and he was found competent to fly the aircraft. He did his training on a Banta B22J (Z199). There was no record that he was rated on the accident aircraft type at the time of compiling this report.

Total Hours	37,9
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

Personnel Information (Passenger)

Nationality	South African	Gender	Male	Age	38
Licence Number	**********	Licence Type	Microlight		
Licence valid	Yes	Type Endorsed	No		
Ratings	None				
Medical Expiry Date	31 August 2010				
Restrictions	None				
Previous Accidents	None				

Flying experience:

Total Hours	37,8
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

1.6 Aircraft Information

Airframe

Type	Apollo Fox	
Serial Number	ZA 140160	
Manufacturer	Halley KFT	
Date of Manufacture	2007	
Total Airframe Hours (at time of accident)	Unknown	
Last Annual Inspection (Date & Hours)	24 November 2010	8,7
Hours since Last Annual Inspection	Unknown	
Private Operation Authority to Fly (Issue Date)	28 November 2007	
C of R (Issue Date) (Present Owner)	28 November 2007	
Operating Categories	Standard	

The aircraft was sold to the owners, P + R Flights CC, on 24 November 2007, by Micro Aviation SA. According to the reviewed records at the time of compiling this report, the aircraft was test-flown on 23 November 2007. The report concluded that the aircraft operated very well in all respects. It had a total of 8,7 hours as on 24 November 2007 during the renewal of the authority to fly. There was no evidence of maintenance records. According to the records at the time of compiling this report, the microlight was purchased new from the manufacturer. A witness stated that the owners performed the first two head torque services themselves – these being 5-hour and 10-hour requirements – as well as the 25-hour oil change. The aircraft had not reached the annual inspection deadline at the time of the crash.

Engine

Type	Jabiru 2200
Serial Number	22 A 2531
Hours since New	Unknown
Hours since Overhaul	Unknown

Propeller

Type	P Prop wooden laminated
Serial Number	N2736
Hours since New	Unknown
Hours since Overhaul	Unknown

1.7.1 Meteorological Information

1.7.1 The following information on the weather in the general area at the time was provided by the South African Weather Services: a trough over the central interior caused partly cloudy conditions with isolated thundershowers over the Free State. No official observation at the exact time and place of the accident was available. The most likely weather at the accident site was as follows:

Wind direction	040˚	Wind speed	03 kt	Visibility	SCT
Temperature	28˚C	Cloud cover	9 000 ft	Cloud base	8 500 ft AML
Dew point	10˚C				

1.7.2 Surface analysis: A trough of low pressure was present over the central interior, with a weak cold front south-east of the country moving to the east, and a high south of the country.

1.7.3 Upper air analysis: At 500 hPa a high pressure was present over the western part of the country with easterly winds in the Senekal area.

1.7.4 The satellite image showed partly cloudy conditions in the Senekal area.

1.8 Aids to Navigation

1.8.1 The aircraft was fitted with standard navigational aids.

1.9 Communications

1.9.1 The aircraft was fitted with standard communication equipment for the type (VHF radio) and there was no record of failures of this before the accident.

1.9.2 The pilot was in radio contact on the Bloemfontein Tower frequency – 120.8 MHz – and thereafter continued on the TIBA (traffic information broadcast by aircraft) frequency and remained below the Bloemfontein TMA (terminal movement area),

as instructed by ATC. There was no flight plan filed for the flight.

1.10 Aerodrome Information

1.10.1 The accident occurred on an open field at Senekal, Free State Province. The GPS co-ordinates were S28˚10.567´ E027˚29.225´.

1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a Cockpit Voice Recorder (CVR) or a Flight Data Recorder (FDR) and neither was required by regulations to be fitted to this type of aircraft.

1.12 Wreckage and Impact Information

1.12.1 The aircraft approached the trees, which were approximately 5 m high and in the flight path, and collided with the tree tops. It crashed approximately 1 km from the trees on the same flight path. On-site observation showed that the aircraft had struck the ground in a steep nose-down attitude. The wreckage was contained in a small area and the fire that erupted burnt the surrounding grass. There was rising terrain a few kilometres from the trees (see Figure 3).

1.12.2 A post-impact fire erupted and much of the aircraft was reduced to debris and ash. Only the structure of the airframe was left – in the same position as the aircraft had impacted the ground. The tail section stood almost vertically, showing that the microlight has impacted the ground at a very steep angle.

1.12.3 The wings were largely destroyed. The leading edges, in particular, suffered the worst damage due to the nose-down impact. All flight controls on both primary and secondary surfaces were still intact, however, and no indications were found of flight controls malfunctioning.

1.12.4 The engine cradle was also destroyed. The nose section appeared to have struck the ground first, causing substantial damage to the engine. There was also fire damage to the engine, and all electrical wiring was destroyed. Engine accessories were found still attached. Due to the extent of the damage, it was impossible to determine conclusively whether the engine had been operating normally or not. However, the witnesses had reported that the engine had been operating.

1.12.5 The propeller was destroyed by impact and fire damage. The propeller blades were reduced to ash and only the propeller hub remained. The indications were that the propeller was rotating at the time of impact.

Figure 3. The rising terrain, on the left, from which the aircraft approached the trees.

Figure 4. The wreckage cordoned off after the accident.

1.13 Medical and Pathological Information

1.13.1 The post-mortem report for both occupants concluded that the cause of death was multiple injuries brought about by the crash.

1.14 Fire

1.14.1 Post-impact fire erupted and destroyed the aircraft.

1.15 Survival Aspects

1.15.1 Due to the severity of the impact forces and the damage to the microlight, the accident was considered non-survivable. The post-impact fire destroyed the safety harnesses, belts and the seats, making analysis of these impossible.

1.16 Tests and Research

1.16.1 Not applicable.

1.17 Organisational and Management Information

This was a private flight and the occupants were co-owners of the aircraft. Neither was rated on the aircraft type. They were of the same age, started their training on the same day at the same flight school, and trained on same type of aircraft, qualifying within eight days of each other.

1.17.1 The aircraft was maintained by an approved person (AP) accredited by the Aero Club (Aeroclub). The AP had a valid certificate at the time of certifying the last inspection on the aircraft and also at the time of compiling this report.

1.18 Additional Information

1.18.1 Not applicable.

1.19 Useful or Effective Investigation Techniques

1.19.1 Not applicable.

2. ANALYSIS

2.1 The pilot, accompanied by a passenger (also a pilot), took off on a private flight from Tempe Aerodrome (FATP) to Nelspruit (FASN) Aerodrome. Witnesses reported that when the aircraft was overhead Senekal it was flying at low level.

2.2 The witnesses also reported that the aircraft made a noise like a vehicle and that the sound grew louder as the microlight approached. However, they could not tell why the aircraft was flying so low. From this, it appears that the engine was running normally, but the investigators could not be determine why the pilot was flying low prior to the crash.

2.3 There was no evidence of maintenance anomalies or defects to the microlight reported by the pilot or passenger aircraft prior to the flight. Onsite investigation evidence showed no anomalies to the aircraft.

2.4 On-site evidence showed that the aircraft crashed in a steep nose-down attitude, fatally injuring both occupants.

2.5 It is possible that he lost control after the microlight clipped the trees and due to his low altitude, was unable to recover and crashed in a nose-down attitude.

2.6 It is also possible that after clearing the rising terrain, the pilot was required to climb again in order to clear the trees. In the process, the aircraft clipped the trees and the pilot lost control and crashed.

3. CONCLUSION

3.1 Findings

Aircraft

3.1.1 The aircraft had a valid certificate of registration and a valid authority to fly.

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

3.1.3 On-site investigations revealed no anomalies on the engine or the airframe.

3.1.4 The propeller blades were reduced to ash and only the propeller hub remained. The indication was that the propeller was rotating at the time of impact.

Crew

3.1.5 Although the pilot was in possession of a valid licence and was medically fit for the flight in accordance with existing civil aviation regulations, the aircraft type was not endorsed on his licence.

3.1.6 The passenger was a pilot himself and a friend of the pilot-in-command. They were of the same age, and had started their training on the same day at the same flight school, trained on same type of aircraft and qualified within eight days of each other. The passenger was also not type-rated on the aircraft.

Operator

3.1.7 This was a private flight and the microlight was co-owned by the occupants.

Environment

3.1.8 The aircraft crashed into the ground on a farm in a nose-down attitude after colliding with trees.

3.2 Probable Cause/s

3.2.1 The aircraft collided with trees, which resulted in the pilot losing control and crashing in a nose-down attitude.

4. SAFETY RECOMMENDATIONS

4.1 None.

5. APPENDICES

5.1 None.

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

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