

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8563	
Aircraft Registration	ZS-FVL	Date of Accident	18 October 2008		Time of Accident	1530Z
Type of Aircraft	Piper PA32-300		Type of Operation		Private	
Pilot-in-command Licence Type		Private Pilot	Age	60	Licence Valid	Yes
Pilot-in-command Flying Experience		Total Flying Hours as on 18 September 2007	548.2		Hours on Type	Unknown
Last point of departure		Private airfield, Farm Tswana Lodge, Limpopo Province				
Next point of intended landing		Private airfield, Farm Tswana Lodge, Limpopo Province				
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Farm Donkerhoek, Limpopo Province (GPS: S 23° 55.088' E 027° 54.177')						
Meteorological Information		Wind 360°TN at 10 kts, temperature 29°C, visibility 10 km				
Number of people on board	1 + 2	No. of people injured	1	No. of people killed	2	
Synopsis						
<p>On 18 October 2008 at approximately 1400Z, a pilot accompanied by two passengers took off from a private airfield at Tswana Lodge for an afternoon sightseeing flight.</p> <p>After the lodge was over flown twice by the pilot, it seemed to the only surviving occupant that they were coming in to land but that they were still too high and too fast. The next moment they touched down on the runway very hard, but the pilot immediately lifted the aircraft into the air again, and it seemed to her that they where unable to land because there was no more runway available to land the aircraft on. Thereafter, they impacted trees before impacting the ground. A post-impact fire erupted, which destroyed the aircraft.</p>						
Probable Cause						
Aircraft impacted with the ground after an unsuccessful landing and go-around attempt.						
IARC Date				Release Date		



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Salto Trading (one) cc
Manufacturer : Piper
Model : PA 32-300
Nationality : South African
Registration Marks : ZS-FVL
Place : Farm Donkerhoek
Date : 18 October 2008
Time : 1530Z

All times given in this report is 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 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 It was reported that on Friday 17 October 2008, the pilot accompanied by 2 passengers landed at a private airfield called Hermanus Dorings for a family weekend at Tswana Lodge, approximately 38 km from Lephalale in the Limpopo Province.
- 1.1.2 There was also a private airfield at Tswana Lodge, but it was not in use according to the owner of the lodge. On the morning of 18 October 2008, whilst at Tswana Lodge, the pilot asked the lodge owner if he could inspect the runway in order to fly the aircraft from Hermanus Dorings where he landed the aircraft the previous day to the airfield on Tswana Lodge.
- 1.1.3 The pilot then walked the runway in order to inspect the runway before he went to fetch his aircraft at Hermanus Dorings. It was reported that the pilot landed the aircraft without incident on the runway at Tswana Lodge.
- 1.1.4 On the afternoon of 18 October 2008, the pilot took two passengers for a sightseeing flight.
- 1.1.5 It was stated by a witness residing on the Donkerhoek farm, where the accident occurred, that at approximately 1505Z he heard an aircraft flying around the area. At approximately 1530Z the witness saw the aircraft started to loose momentum and fall to the ground.

- 1.1.6 He then rushed to the accident site. On arrival, he witnessed flames coming from the aircraft and saw two people struggling to free themselves from the aircraft. He was suddenly pushed back when the aircraft exploded in front of him.

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 by a post-impact fire.



Figure 1: The aircraft was destroyed by a post-impact fire

1.4 Other Damage

- 1.4 Bush vegetation in an area approximately 57 m in diameter was burnt.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	60
Licence Number	*****	Licence Type		Private	
Licence Valid	Yes	Type Endorsed		Yes	
Ratings	Night				
Medical Expiry Date	28 February 2009				
Restrictions	To wear corrective lenses				
Previous Accidents	<div><div>1. On 26 July 2004, the pilot lost directional control on landing and the aircraft veered off the runway.</div><div>2. On 20 June 2006, the pilot had to perform a forced landing after the aircraft experienced an engine failure on both engines.</div></div>				

Flying Experience:

Total Hours as on 18 September 2007	548.2
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

1.6 Aircraft Information

Airframe:

Type	Piper PA32-300	
Serial Number	32-40621	
Manufacturer	Piper Aircraft Corporation	
Year of Manufacture	1969	
Total Airframe Hours (At Time of Accident)	Unknown	
Last MPI (Hours & Date)	2 942.87	15 August 2008
Hours Since Last MPI as on 24 September 2008, as per flight folio	26.3	
C of A (Issue Date)	4 December 2006	
C of A (Expiry Date)	3 December 2008	
C of R (Issue Date) (Present owner)	8 October 2004	
Operating Categories	Standard	

Engine:

Type	Lycoming IO-540-KIA5
Serial Number	L6963-48
Hours as on 24 September 2008	2 969.17
Hours Since Overhaul as on 24 September 2008	967.17

Propeller:

Type	Hartzell HC-C3YR-IRF
Serial Number	DY 6977B
Hours since New as on 24 September 2008	417.27
Hours since Overhaul	TBO not yet reached

1.7 Meteorological Information

- 1.7.1 According to the official weather report obtained from the South African Weather Services, the following were the weather conditions on the day of the accident:

Surface Analysis:

A high-pressure system was ridging south of the country, feeding moist air into the eastern part of the country. A trough of low pressure was present over the central interior of the country.

Upper Air:

At 500 hPa (+/- 180 000 ft above mean sea level), a high-pressure system was present over the central interior with moderate southerly winds in the Ellisras area.

Satellite image:

The satellite image shows partly cloudy conditions in the Ellisras area.

Weather conditions in the vicinity of the accident:

No official observations are available at the time and place of the accident. The most likely weather conditions at the place of the accident were as follows:

Temperature: 29 °C
Dew Point: 10 °C
Wind Direction: 360 °TN 10 kts
Cloud: SCT cloud at 5 000 ft, FEW CB at 5 000 ft
Visibility: 10 km

1.8 Aids to Navigation

- 1.8.1 According to records, the aircraft was equipped with an Airpath C-2350-L41 Compass. There were no recorded entries of defects experienced with the navigation equipment.

1.9 Communications

- 1.9.1 The communication equipment that was installed in the aircraft was a King KX 170B VHF receiver. There were no recorded entries of defects experienced with the communication equipment.

1.9.2 There was no communication with air traffic control (ATC), as the aircraft was operated outside of controlled airspace.

1.10 Aerodrome Information

1.10.1 The accident occurred approximately 38 km from Lephalale in the Limpopo Province (GPS co-ordinates: S 23° 55.088' E 027° 54.177'), 246.4 m from the end of the threshold of a runway on an unlicensed airfield on Tswana Lodge.

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with a flight data recorder (FDR) or a cockpit voice recorder, and neither recorder was required in terms of the Civil Aviation Regulations.

1.12 Wreckage and Impact Information

1.12.1 The aircraft was found 246.4 m from the end of the threshold of the runway of an unlicensed airfield on Tswana Lodge, on the farm Donkerhoek. The aircraft was found destroyed by a post-impact fire, facing on a heading of 175°. During the impact sequence, the aircraft impacted trees 189.4 m from the end of the threshold of the runway at an angle of approximately 45° in a nose-down attitude. The aircraft impacted the ground at the geographical position of S 23° 55.088' E 027° 54.177'.

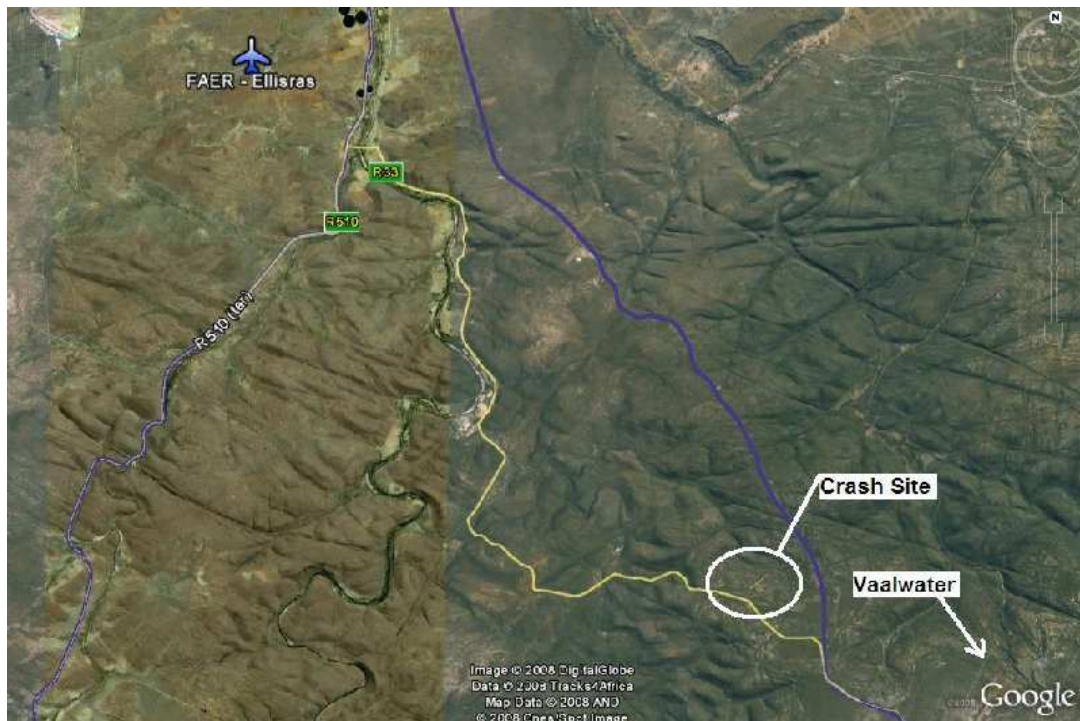


Figure 2: A Google Earth image of the accident site



Figure 3: The runway of the unlicensed airfield at Tswana Lodge as viewed from the R33 public road



Figure 4: The end of the threshold of the runway at Tswana Lodge, bordered by the fence between Tswana Lodge and Farm Donkerhoek.

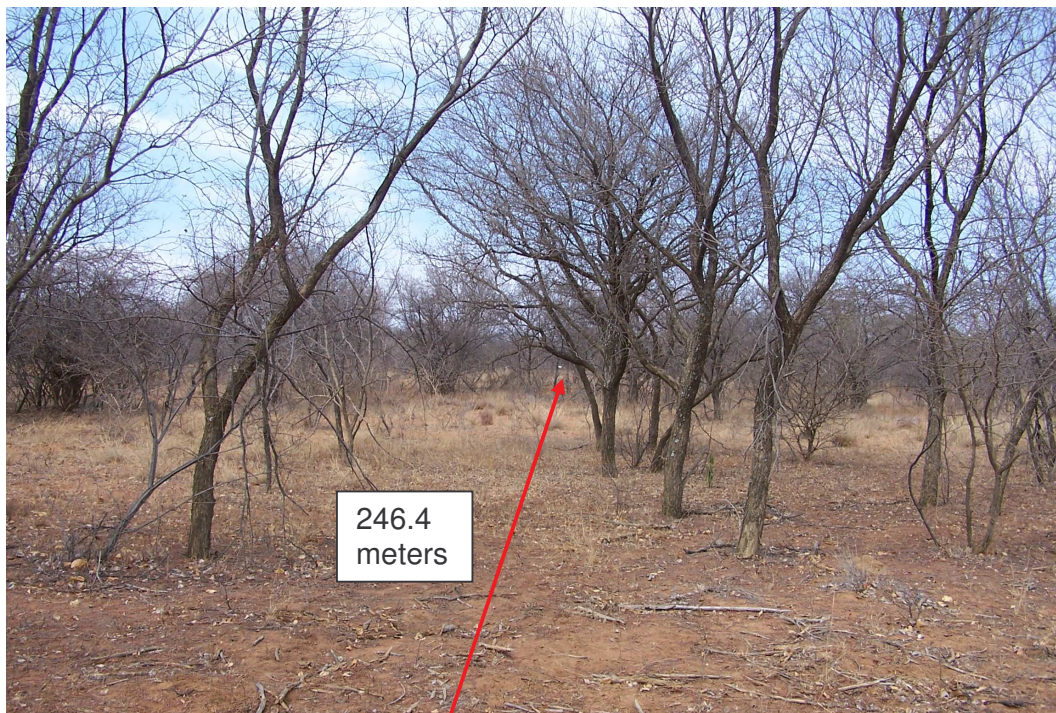


Figure 5: Photo taken from the end of the threshold of the runway at Tswana Lodge, indicating the distance of the wreckage from the runway



Figure 6: Indicating the trees the aircraft impacted and impact angle

1.13 Medical and Pathological Information

- 1.13.1 A post-mortem examination was performed on the deceased pilot after the accident.
- 1.13.2 The results of the post-mortem report and toxicology tests were not available at the time the report was compiled. Should any of the results be significant, an attachment will be added to this report to include the results.
- 1.13.3 The two passengers were admitted to hospital after the accident, but one of the passengers succumbed to the effects of the post-impact fire two weeks after the accident.
- 1.13.4 The other passenger was treated for burn wounds and stayed in hospital for nearly 6 months before she was discharged.

1.14 Fire

- 1.14.1 A post-impact fire erupted when the aircraft impacted the ground. The aircraft was destroyed by the post-impact fire. The aircraft caught fire on impact with the ground most probably due to rupturing of the fuel tank as a result of impact with the ground. This could have caused fuel to leak onto the hot engine, which in turn ignited the fuel.
- 1.14.2 The aircraft accident occurred in between trees on a farm, 246.4 m from a runway at an unlicensed airfield at Tswana Lodge. The airfield has no rescue or fire services available as it is not a requirement in terms of the Civil Aviation Regulations 1997.
- 1.14.3 An attempt was made by the residents of Farm Donkerhoek to extinguish the fire by means of sand and water.

1.15 Survival Aspects

- 1.15.1 The accident was considered survivable, because although the pilot was fatally injured, the two passengers did survive the accident after impact. The aircraft was still intact on impact and was destroyed only once the post-impact fire erupted.
- 1.15.2 However, it was reported by the people who assisted the passengers after the accident that confusion existed between the police as to in whose district the accident occurred. Further to this, the occupants who survived the accident had to wait almost three hours before they were taken for medical treatment. The two surviving passengers were taken to Modimolle Hospital by ambulance before they were transferred to Milpark Hospital in Johannesburg. This sequence of events reduced the chances of survivability, particularly of the passenger who sustained 70% burn wounds.

1.16 Tests and Research

- 1.16.1 The destruction of the engine by impact and fire precluded determination of any engine malfunction prior to impact. However, the propeller exhibited chord-wise scratching and torsional damage indicative of the engine being operational at impact. Furthermore, during the witness interview the witness stated that the pilot reported no problems that could have indicated that there were any problems experienced with the aircraft prior to impact.

1.17 Organisational and Management Information

1.17.1 This was a private flight.

1.17.2 The pilot was the owner of the aircraft.

1.17.3 According to available records, the aircraft maintenance organisation (AMO) that certified the last mandatory periodic inspection (MPI) on the aircraft prior to the accident was in possession of a valid AMO approval with an expiry date of 31 October 2008.

1.18 Additional Information

1.18.1 On-site Investigation:

During the on-site investigation, the following was found:

- No obvious physical damage to the exterior surfaces of the engine.
- The engine was still mounted and secured to the aircraft.
- All major components of the aircraft were accounted for.
- The rudder and horizontal elevator were not destroyed by the post-impact fire.
- It was not possible to determine the flap settings due to the damage sustained as a result of the post-impact fire.

1.18.2 It was only possible to interview the only surviving passenger on 5 May 2009, nearly 7 months after the accident because of the injuries she sustained.

She stated the following:

At approximately 1400Z, they went to the runway for a pleasure flight. After a runway inspection, they took off and did some sightseeing over the area. She stated that they over flew the lodge where they were staying twice. The second time that they over flew the lodge, it seemed to her that they were coming in to land, but stated that it felt to her that they were still too high and too fast. The next moment they touched down on the runway very hard. She stated that the pilot said: "Sorry, *julle*". She said that the pilot immediately lifted the aircraft into the air because it seemed to her that they were unable to land because there was no more runway available. When she looked out of the window, she observed that they were already above trees and it felt to her as if they were busy turning when she suddenly realised something was wrong. The next moment they started impacting trees, before impacting the ground. On impact, a fire started from the front of the aircraft. She and her husband were able to rescue themselves from the burning wreckage. Whilst they were running away from the wreckage, the aircraft exploded.

She further stated that:

- At no stage did the pilot indicate that there was a problem with the aircraft.
- The pilot did not talk to them after the touchdown on the runway. The pilot's last words were "Sorry, *julle*".
- The engine was running the whole time, and after the touchdown on the runway the engine sound seemed louder.
- The aircraft started burning on impact.

1.18.3 It was found that on 17 October, the pilot uplifted 176 l of fuel.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

The aircraft took off from a private airfield at Tswana Lodge for an afternoon sightseeing flight. After the lodge was over flown twice by the pilot, it seemed to the only surviving occupant that they were coming in to land but that they were still too high and too fast. The next moment they touched down on the runway very hard and the surviving passenger stated that the pilot said "Sorry, *julle*". She said that the pilot immediately lifted the aircraft into the air and it seemed to her that they were unable to land because there was no more runway available. She stated that when she looked out of the window, she observed that they were already above trees and it felt to her as if they were busy turning when she suddenly realised something was wrong. The next moment they started impacting trees, before impacting the ground. On impact, a fire started from the front of the aircraft. She and her husband were able to rescue themselves from the burning wreckage. Whilst they were running away from the wreckage, the aircraft exploded.

She further stated the following:

- ☐ At no stage did the pilot indicate that there was a problem with the aircraft.
- ☐ The pilot did not talk to them after the touchdown on the runway.
- ☐ The engine was running the whole time, and after the touchdown on the runway, the engine sound seemed louder.

2.2 The aircraft was found destroyed by a post-impact fire. The engine was not subjected to a full engine teardown examination after the accident. The propeller exhibited chord-wise scratching and torsional damage indicative of the engine being operational at impact. Furthermore, during the witness interview, the witness stated that the pilot reported no problems that could have indicated that there were any problems experienced with the aircraft prior to impact

2.3 The pilot was properly licensed and had a valid medical certificate at the time of the accident.

2.4 Civil Aviation Authority documentation revealed that the aircraft had a valid Certificate of Airworthiness. No evidence of pre-accident defects or malfunctions

was found, which could have contributed to the accident.

- 2.5 The official weather report obtained from the South African Weather Services reported a temperature of 29°C, a dew point of 10°C, wind direction of 360°TN at 10 kts, SCT cloud at 5 000 ft, FEW CB at 5 000 ft and visibility of 10 km. Therefore, the weather is not considered to have contributed to the accident.
- 2.6 It is considered by the investigator that the accident was survivable if the occupants received faster and better medical attention after the accident.
- 2.7 Since no conclusive evidence was found during the investigation, the reason/s why the accident occurred are unknown to the investigator. From the evidence gathered on-scene and the witness statement from the only surviving occupant, it seems that the pilot came in to land but at too high a speed and as a result, saw that he was running out of runway. It seems that he then tried to get the aircraft airborne again, as soon as possible. The pilot most probably flew the aircraft on the wrong side of the drag curve. In the process, he stalled the aircraft, where after the aircraft impacted trees and a post-impact fire erupted when the aircraft impacted with the ground.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot was the holder of valid private pilot licence and was properly type rated on the aircraft.
- 3.1.2 The Certificate of Airworthiness of the aircraft was valid at the time of the accident.
- 3.1.3 The AMO was in possession of a valid AMO approval.
- 3.1.4 Prevailing weather conditions did not contributed to the accident.
- 3.1.5 The pilot and one passenger were fatally injured.
- 3.1.6 The aircraft was destroyed by impact forces and a post-impact fire.
- 3.1.7 The destruction of the engine by impact and fire, precluded determination of engine malfunction prior to impact. However, the propeller exhibited chord-wise scratching and torsional damage indicative of the engine being operational at impact.

3.2 Probable Cause/s

- 3.2.1 Impact with the ground after an unsuccessful landing and go around attempt.

4. SAFETY RECOMMENDATIONS

- 4.1 None.

5. APPENDICES

5.1 None.

Report reviewed and amended by Advisory Safety Panel: 25 August 2009.

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