

## AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/9465	
<b>Aircraft Registration</b>	ZS-UZZ	<b>Date of Accident</b>	22 August 2015		<b>Time of Accident</b>	0758Z
<b>Type of Aircraft</b>	Pitts Special S-1S (Aeroplane)		<b>Type of Operation</b>		Private ( Part 91)	
<b>Pilot-in-command Licence Type</b>	Private Pilot	<b>Age</b>	46	<b>Licence Valid</b>	Yes	
<b>Pilot-in-command Flying Experience</b>	Total Flying Hours	309.1		Hours on Type	11.4	
<b>Last point of departure</b>	Brits Aerodrome (FABS): North West province					
<b>Next point of intended landing</b>	Rustenburg Aerodrome (FARG): North West province					
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
Residential holding Plot 70, Rashoop at GPS position South 25°31'20" East 027°46'33" elevation of 3700ft						
<b>Meteorological Information</b>	Wind: 150°/05KT, Visibility: 10 000m, Temperature: 23°C, Dew point: 09°C, Cloud cover: Clear skies. Cloud base: CAVOK.					
<b>Number of people on board</b>	1	<b>No. of people injured</b>	0	<b>No. of people killed</b>	1	
<b>Synopsis</b>						
<p>The pilot on board the aircraft, took off from Brits Aerodrome (FABS) on a private flight to Rustenburg aerodrome (FARG). The pilot's intention was to proceed with the private flight to Rustenburg, but members at Brits aerodrome clubhouse requested him to perform some manoeuvres at Brits Aerodrome first after take-off.</p> <p>According to eye witnesses at Brits aerodrome, the pilot took off from Runway 20 in a south westerly direction, where after he executed a left-hand circuit at the aerodrome. He then approached Runway 20 again in a south westerly direction and performed a "knife edge" (90 degrees roll on its horizontal axis.) aerobatic manoeuvre at approximately 100ft overhead the runway. After completing the fly pass overhead Runway 20, the pilot executed a 360° turn manoeuvre and approached Runway 02 in a north easterly direction. The pilot then performed a low-level fly pass at approximately 50 feet above the runway and pulled the nose of the aircraft up and climbed to between 200-300ft at the end of the runway. During the manoeuvre the aircraft rolled to the left hand side, through 180 degrees, in an inverted attitude. The pilot was unable to recover from the manoeuvre and the aircraft impacted with the terrain in the back yard of a residential area, 800 metres from the runway. The pilot was fatally injured and the aircraft was destroyed during the impact sequence. Both the approximate heights and distances were provided by the witness.</p> <p>The flight was being conducted under visual meteorological conditions (VMC) during daylight conditions.</p>						
<b>Probable Cause</b>						
<p>During an aerobatic display, the pilot performed a manoeuvre that he was unable to recover from which resulted in-impacted with the terrain.</p>						
<b>SRP Date</b>	10 October 2017		<b>Release Date</b>	14 February 2018		



## AIRCRAFT ACCIDENT REPORT

**Name of Owner** : A Denoon  
**Name of Operator** : A Denoon (Private)  
**Manufacturer** : Pitts  
**Model** : Special S-1S  
**Nationality** : South African  
**Registration Marks** : ZS-UZZ  
**Place** : Plot 70, Rashoop at Brits.  
**Date** : 22 August 2015  
**Time** : 0758Z

*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 (2011) 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 blame or liability.*

### Disclaimer:

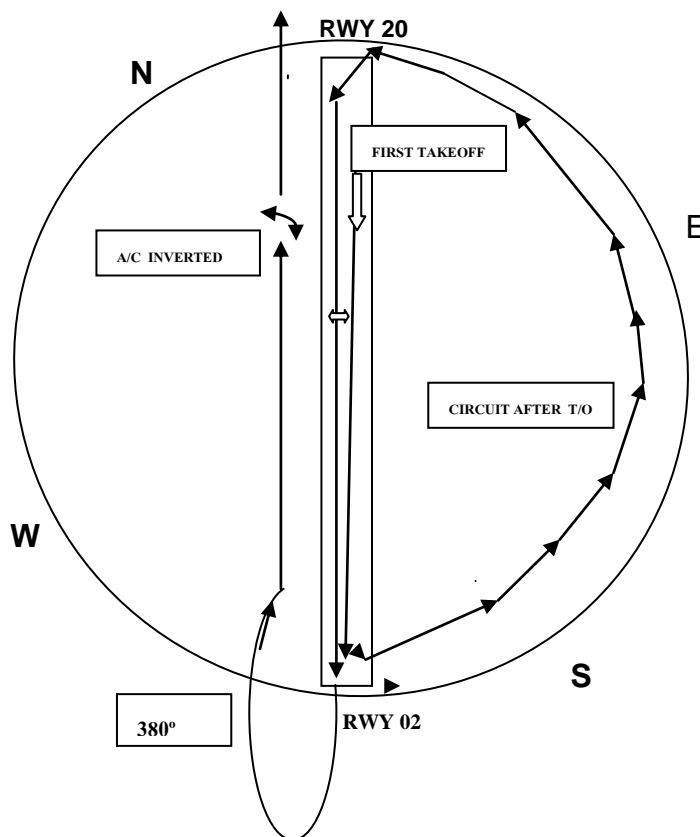
*This report is produced without prejudice to the rights of the CAA, which are reserved.*

## 1. FACTUAL INFORMATION

### 1.1 History of Flight

- 1.1.1 The Pitts Special S-1S aircraft, registration ZS-UZZ, with the pilot on board the aircraft, took off from Brits Aerodrome (FABS) at about 0750Z on a private flight to Rustenburg aerodrome (FARG). The pilot's intention was to proceed to Rustenburg aerodrome, but members at the Brits aerodrome clubhouse requested him to execute some manoeuvres first at Brits Aerodrome after take-off.
- 1.1.2 The flight was being conducted under visual meteorological conditions (VMC) during daylight conditions.

- 1.1.3 According to eye witnesses at Brits aerodrome, the pilot took off from Runway 20 in a south westerly direction when the aircraft drifted 40 degrees to the left hand side. The pilot then executed a left-hand circuit at the aerodrome, and approached Runway 20 again in a south westerly direction and performed a “knife edge” (90 degrees) aerobatic manoeuvre overhead the runway.
- 1.1.4 After completing the fly pass overhead Runway 20, the pilot executed a 360° turn manoeuvre and approached Runway 02 in a north easterly direction followed by a low-level fly pass at approximately 50 feet above the runway. The pilot then pulled the nose of the Pitts Special S-1S aircraft up at the end of the runway, and between 200-300 feet above ground level, the aircraft rolled to the left hand side, through 180 degrees in an inverted attitude. The aircraft pitched nose-down and impacted with the terrain in the back yard of a residential area, approximately 800 metres further on. Both the approximate heights and distances were provided by the witness.
- 1.1.5 The aircraft impacted the ground in an inverted attitude at geographical position of S25°31'20".E027°46'33", at an elevation of 3700ft feet above mean sea level (AMSL).
- 1.1.6 The pilot was fatally injured during the accident sequence.
- 1.1.7 The sketch of the circuit flown by the pilot during take-off before the accident occurred are illustrated below:





**Figure 1:** The accident site in relation to the runway.

## 1.2 Injuries to Persons

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

## 1.3 Damage to Aircraft

### 1.3.1 The aircraft was destroyed



**Figure 2:** View of the main wreckage.

#### **1.4 Other Damage**

- 1.4.1 Damage was caused to a tree and a bird aviary before the aircraft impacted the ground.



**Figure 3:** Shows Aircraft Impacted Tree & Bird Aviary Before Impacting Ground





**Figure 4: Shows Damaged Top Section of Bird Aviary**

## 1.5 Personnel Information

Nationality	South African	Gender	Male	Age	46
Licence Number	0271058521	Licence Type	Private Pilot		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Night rating				
Aerobatic Rating	Not Rated for aerobatics				
Medical Expiry Date	31 January 2016				
Restrictions	Corrective lenses				
Previous Accidents	No previous accidents on file.				

Flying Experience:

Total Hours	309.1
Total Past 90 Days	11.4
Total on Type Past 90 Days	11.4
Total on Type	11.4

- 1.5.1 The above flying hours was the pilot's flying hours as the pilot's logbook was last updated on 19 March 2015. The flight folio hours were added to the logbook hours as indicated on 19 March 2015.

1.5.2 The pilot was in possession of a valid Private Pilot's Licence but did not hold an aerobatic rating.

### 1.5.3 Aerobatic Flight Information

Part 91.07.30 Civil Aviation Regulations of 2011

1) No aircraft shall be flown aerobatically so as to endanger air traffic

2) Except by individual permission from the Director, shall aircraft not be flown aerobatically:

- (a) Unless the manoeuvre can be concluded and the aircraft brought on an even keel at a height not less than 2000ft above the ground or water.
- (b) Within 5nm distance of an aerodrome reference point of an aerodrome licensed and approved in terms of Part 139 unless at a height not less than 4000ft agl.
- (c) In the vicinity of air traffic service routes; or
- (d) Over any populous area or public gatherings

## 1.6 Aircraft Information

### Airframe:

Type	Pitts Special S-1S	
Serial Number	E-1	
Manufacturer	Pitts	
Year of Manufacture	1998	
Total Airframe Hours (At time of Accident)	1755.9	
Last Annual Inspection (Date & Hours)	23 January 2015	1744.5
Hours since Last Annual	11.4	
Authority to Fly (Issue Date)	18 February 2015	
C of R (Issue Date) (Present owner)	5 February 2015	
Operating Categories	Part 91	

### 1.6.1 General Aircraft Information



Figure 5: Recent Photo Of The Accident Aircraft

The Pitts Special S-1S was manufactured with round aerofoil section, four ailerons and powered by a 200 Hp Lycoming AEIO-360-A1A engine.

**Engine:**

Type	Lycoming AEIO-360-A1A
Serial Number	L-13913-36A
Hours since New	± 496.9
Hours since Overhaul	TBO not yet reached.

Note: Approximate hours

**Propeller:**

Type	Sensenich W76HM8-62
Serial Number	AH-1240
Hours since New	± 327.4
Hours since Overhaul	TBO not yet reached.

Note: Approximate hours

**1.7 Meteorological Information**

- 1.7.1 The meteorological information in the table below was obtained from the South African Weather Service (SAWS).

Wind direction	150 °M	Wind speed	05 KT	Visibility	10000m
Temperature	23°C	Cloud cover	Clear sky	Cloud base	Nil
Dew point	09°C				

- 1.7.2 The surface weather report for Pilanesberg (FAPN) was obtained since this was the nearest reporting station from the accident site.

**1.8 Aids to Navigation**

- 1.8.1 The aircraft was equipped with standard navigational equipment as approved by the Regulator. There were no recorded defects to the navigational 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 communication equipment prior to the flight.
- 1.9.2 The pilot communicated his intentions on very high frequency (VHF) 124.2 MHz.



## 1.10 Aerodrome Information

Aerodrome Location	7 NM North-west of Brits	
Aerodrome Co-ordinates	S 25°31'57" E 027°46'33"	
Aerodrome Elevation	3740ft	
Runway Designations	02/20	N/A
Runway Dimensions	835m x 18m	N/A
Runway Used	20	
Runway Surface	Asphalt	
Approach Facilities	None	

1.10.1 The accident occurred within 1 nautical mile from Brits aerodrome (FABS) at the GPS coordinates of S25° 31'20" E027° 46'33".

## 1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a cockpit voice recorder (CVR) or a flight data recorder (FDR): nor was either required to be fitted to this type of aircraft.

## 1.12 Wreckage and Impact Information

1.12.1 The forward section of the fuselage, including the engine, was significantly compressed. Both the upper and lower wings separated from the fuselage during impact and was destroyed.

1.12.2 The engine remained attached to the engine mounting support and displayed severe impact damage.

1.12.3 The propeller fractured at the propeller hub assembly.

1.12.4 The wreckage was found inverted, 5 metres away from the first impact point with a tree and a bird aviary. The height of the impact with the tree was 5 metres. The aircraft main wreckage heading was determined to be 360° in a northerly direction.

1.12.5 No evidence of the main landing gear impact was noted due to the fact that the aircraft was inverted at the time that the accident occurred. The tail wheel was still attached to the fuselage after the accident.

1.12.6 An on-site investigation revealed that no part of the airframe structure and no control surfaces were missing.

1.12.7 The aircraft was destroyed

## 1.13 Medical and Pathological Information

1.13.1 A post-mortem examination was performed on the deceased pilot after the accident. The results of the post-mortem examination and toxicology tests were not available at the time this report was compiled. If any medical aspect that may have affected the performance of the pilot becomes available, this will be considered as new evidence and the investigation re-opened.

## **1.14 Fire**

1.14.1 There was evidence of a pre- or post-impact fire.

## **1.15 Survival Aspects**

1.15.1 The accident was considered not survivable due to the high kinetic forces associated with the impact. The cockpit area was completely destroyed.

## **1.16 Tests and Research**

1.16.1 None

## **1.17 Organizational and Management Information**

1.17.1 The last Annual inspection prior to the accident flight was certified on 23 January 2015, at 1744.5 airframe hours, by an approved person in possession of a valid AP Certificate at RAASA.

## **1.18 Additional Information**

1.18.1 None

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

1.19.1 None

# **2. ANALYSIS**

## **2.1 Man**

2.1.1 The pilot held a valid Private Pilot licence (Aircraft) at the time of the accident with the aircraft type endorsed on it. The pilot was also in possession of a valid medical certificate with restrictions to wear corrective lenses. The pilot however did not have Aerobatic rating endorsed on his licence.

2.1.2 The pilot was unable to recover from the manoeuvre and the aircraft impacted with the terrain.

## **2.2 Machine**

2.2.1 The aircraft maintenance documents revealed that the last annual inspection on the NTCA aircraft was carried out on 23 January 2015, at a total of 1744.5 Airframe hours. The inspection was conducted by an approved person (AP) with a valid AP certificate. The application for the renewal of an Authority to Fly for the NTCA was approved.

2.2.2 The aircraft was serviceable with no recorded defects evident before the accident flight.

## 2.3 Environment

The SAWS reported Fine weather conditions with clear skies and Temperature of 23°C with the Wind speed and direction 15005KT.

## 3 **CONCLUSION**

### 3.1 **Findings**

- 3.1.1 Although the pilot was properly qualified and certified for the private flight to Rustenburg, he was not certified to do any aerobatic manoeuvres.
- 3.1.2 The pilot possessed a valid medical certificate with the use of corrective lenses endorsed on it.
- 3.1.3 Part 91.07.30 of the Current Aviation Regulations was transgressed by the execution of the aerobatic manoeuvre. The roll manoeuvre that was executed by the pilot, contravened Part 91.07.30 of the Civil Aviation Regulations of 2011.
- 3.1.4 The Weather conditions were fine and did not contribute to the cause of the accident.
- 3.1.5 The pilot was unable to recover from the manoeuvre and the aircraft impacted with the terrain/ low level flying.

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

- 3.2.1 During an aerobatic display, the pilot performed a manoeuvre that he was unable to recover from which resulted in-impacted with the terrain.

### 3.3 **Contributory Factor:**

- 3.3.1 None

## 4. **SAFETY RECOMMENDATIONS**

- 4.1 None

## 5. **APPENDICES**

- 5.1 None