



## AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Ref No.	CA18/2/3/8571	
<b>Aircraft Registration</b>	ZU-RAH	<b>Date of Accident</b>	27 October 2008		<b>Time of Accident</b>	1610Z
<b>Type of Aircraft</b>	Alouette II SNIAS SE3130	<b>Type of Operation</b>		Training		
<b>Pilot-in-command Licence Type</b>	Student (Helicopter)	<b>Age</b>	42		<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>	Total Flying Hours	25.0		Hours on Type	25.0	
<b>Last point of departure</b>	Brits Aerodrome (FABS)					
<b>Next point of intended landing</b>	Brits Aerodrome (FABS)					
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
Helicopter landing area next to runway 20 at FABS						
<b>Meteorological Information</b>	Surface wind 270° at 10 kts, temperature 28 °C, CAVOK					
<b>Number of people on board</b>	1 + 0	<b>No. of people injured</b>	1 + 0		<b>No. of people killed</b>	0
<b>Synopsis</b>	<p>According to the instructor, the student pilot was busy with the third solo circuit training flight for the day when the accident occurred. The pilot approached the concrete block landing area next to runway 20 at Brits Aerodrome and positioned the helicopter into a hover approximately 3 m above the ground. He maintained this position for a short period and then attempted to counteract the torque of the main rotor when the helicopter started to turn to the left on its vertical axis. The first 180° of his turn was executed erratically, and then the helicopter started spinning excessively to the left for approximately 20 seconds. During this time, the helicopter gained approximately 2 m in height, and then started moving to the eastern side of the runway and descending. The helicopter then landed hard in an upright position on its right hand skid on the grass but seconds later rolled over onto its right-hand side, resulting in the main rotor blades impacting the ground. The pilot immediately exited the helicopter but then climbed back into the helicopter in order to switch off the engine that was still running. The pilot then again exited the helicopter and was taken to hospital by NETCARE 911 for observations.</p> <p>The pilot sustained only minor injuries. The helicopter was substantially damaged during the impact sequence.</p>					
<b>Probable Cause</b>						
Pilot lost control of the aircraft during adverse wind conditions						
<b>IARC Date</b>			<b>Release Date</b>			



<b>AIRCRAFT ACCIDENT REPORT</b>
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**Name of Owner/Operator** : Ferrodrill (Pty) Ltd.  
**Manufacturer** : Aerospatiale  
**Model** : SNIAS SE3130 Alouette II  
**Nationality** : South African  
**Registration Marks** : ZU-RAH  
**Place** : Brits Aerodrome (Helipad)  
**Date** : 27 October 2008  
**Time** : 1610Z

*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 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 According to the instructor, the student pilot was busy with the third solo circuit training flight for the day when the accident occurred.
- 1.1.2 The pilot approached the concrete block landing area near runway 20 at Brits Aerodrome for landing, and positioned the helicopter into a hover approximately 3 m above the ground. He maintained this position for a short period and then attempted to counteract the torque of the main rotor when the helicopter started to turn to the left on its vertical axis. The first 180° of his turn was executed erratically, and then the helicopter started spinning excessively to the left for approximately 20 seconds. During this time, the helicopter gained approximately 2 m in height, and then started moving to the eastern side of the runway and descending.
- 1.1.3 The helicopter landed hard in an upright position on its skids, but seconds later rolled over onto its right-hand side resulting in the main rotor blades impacting the ground. The pilot immediately exited the helicopter but climbed back into the helicopter in order to switch off the engine that was still running. The pilot then again exited the helicopter and was taken to hospital by a NETCARE 911 ambulance for observations.
- 1.1.4 The pilot sustained only minor injuries. The helicopter was substantially damaged during the impact sequence.



**Figure 1: The helicopter wreckage**



**Figure 2: The helicopter wreckage**

**1.2 Injuries to Persons:**

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

1.2.1 The pilot sustained only minor injuries.

### 1.3 Damage to Aircraft:

1.3.1 The helicopter fuselage, main rotor blades, tail rotor, landing skids and airframe were extensively damaged during the impact.



**Figure 3:** Damage sustained to main rotors and fuselage structure

### 1.4 Other Damage:

1.4.1 There was no other damage on the ground as result of the accident.

### 1.5 Personnel Information:

1.5.1 Pilot (Student Pilot):

Nationality	South African	Gender	Male	Age	42
Licence Number	*****	Licence Type	Student (Helicopter)		
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	31 August 2009				
Restrictions	None				
Previous Accidents	None				

### 1.5.2 Student Pilot Flying Experience:

Total Hours (Helicopters)	25.0
Total Past 90 Days	25.0
Total on Type Past 90 Days	25.0
Total on Type	25.0

## 1.6 Aircraft Information

### 1.6.1 Airframe:

Type	SNIAS SE3130 Alouette II	
Serial Number	1369	
Manufacturer	Aerospatiale	
Year of Manufacture	1960	
Total Airframe Hours (At Time of Accident)	11 809.8	
Last Annual (Hours & Date)	11 789.8	28 August 2008
Hours Since Last Annual Inspection	+ 20.0	
Authority to Fly (Issue Date)	17 September 2008	
Authority to Fly (Expiry date)	28 August 2009	
C of R (Issue date) (Present Owner)	08 October 2001	
Operating Categories	Standard	

### 1.6.2 Engine:

Type	Turbomecca Artouste II C5
Serial Number	482-2320
Hours Since New	Unknown
Hours Since Overhaul	1 017.8

## 1.7 Meteorological Information

1.7.1 According to the pilot questionnaire, the weather conditions at the time of the accident were as follows:

Wind Direction	Westerly	Wind Speed	10 kts	Visibility	Good
Temperature	+28°C	Cloud Cover	3/8	Cloud Base	10 000 ft
Dew Point	N/A				

## 1.8 Aids to Navigation

1.8.1 The aircraft was equipped with the standard navigational equipment. There were no recorded defects reported prior to the accident.

1.8.2 Navigational equipment did not play a role in this accident as the student pilot was hovering above the landing area when the accident occurred.

## 1.9 Communications

1.9.1 Brits Aerodrome is an unmanned aerodrome. The pilot broadcast his intentions on the very high frequency (VHF) 124.4 MHz prior to landing at the parking area at Brits Aerodrome.

## 1.10 Aerodrome Information

1.10.1

Aerodrome Location	7 nm NW of Brits
Aerodrome Co-ordinates	S25° 31.57' E027° 46.33'
Aerodrome Elevation	3 740 ft AMSL
Aerodrome Status	Licensed
Runway Designations	02/20
Runway Dimensions	835m x 18m
Runway Used	Landing area next to RWY 20
Runway Surface	Asphalt
Approach Facilities	None



**Figure 4:** View of the wreckage with the runway and hangars in the background

## 1.11 Flight Recorders

1.11.1 The helicopter was not fitted with a cockpit voice recorder (CVR) or a flight data recorder (FDR), and neither was required to be fitted according to regulations.

## 1.12 Wreckage and Impact Information

1.12.1 The helicopter started spinning excessively to the left at the concrete block parking bay near the windsock. The student pilot attempted to correct the situation with the cyclic control, causing the helicopter to move forward and then downwards to eventually land hard on the right hand skid, causing the main rotor blades to impact the tail rotor boom. The helicopter then rolled over onto the right-hand side.



**Figure 5:** The helicopter skid damaged on impact

## 1.13 Medical and Pathological Information

1.13.1 The student was properly restrained by the safety harnesses and escaped without any injuries.

## 1.14 Fire

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

## 1.15 Survival Aspects

1.15.1 The accident was survivable due to the low-impact forces involved, and the student pilot was properly restrained with a three-point safety harness.

## 1.16 Tests and Research

1.16.1 None.

## 1.17 Organisational and Management Information.

1.17.1 This was a training flight flown by the student pilot who was in possession of a student's pilot helicopter licence. The student was also the owner of the helicopter.

1.17.2 According to the Authority to Fly, the aircraft is privately operated and utilised for owner training.

1.17.3 The last annual inspection was carried out on the helicopter by an approved person (AP) of the Aero Club of South Africa on 28 August 2008 at 11 789.8 airframe hours.

### **1.18 Additional Information**

1.18.1 None

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

1.19.1 None considered necessary.

## **2. ANALYSIS**

2.1 Available evidence indicates that the aircraft was serviceable prior to take-off and during the student pilot's third solo circuit and landing training flight at Brits Aerodrome.

2.2 The pilot approached the helicopter landing area next to runway 20 at Brits Aerodrome for landing and positioned the helicopter into the hover approximately 3 m above the ground. He maintained this position for a short period and then attempted to counteract the main rotor torque when the helicopter started to turn to the left on its vertical axis. The first 180° of his turn was executed erratically, and then the helicopter started spinning excessively to the left for approximately 20 seconds. During this time, the helicopter gained approximately 2 m in height, and then started moving to the eastern side of the runway and descending. The helicopter landed hard in an upright position on its skids but seconds later rolled over onto its right-hand side, resulting in the main rotor blades impacting the ground.

## **3. CONCLUSION**

### **3.1 Findings**

3.1.1 The student pilot was the holder of a valid student pilot's licence on helicopters and the helicopter type was endorsed in his logbook. The student had flown a total of 25 hours on the Alouette II helicopter when the accident occurred.

3.1.2 The last annual inspection prior to the accident was certified on 28 August 2008 by an approved person (AP) at 11 789.8 airframe hours.

3.1.3 The helicopter had flown approximately 20.0 hours since the last annual inspection was certified.

3.1.4 The weather conditions were reported to be fine with 3/8 clouds. The surface temperature was approximately 28°C and the surface wind westerly at 10 kts.



3.1.5 According to the instructor who witnessed the accident, the helicopter started turning erratically to the left, through 180°, and thereafter started spinning excessively for approximately 20 seconds. The helicopter descended and impacted the ground hard before it rolled over onto its right-hand side.

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

3.2.1 Pilot lost control of the aircraft during adverse wind conditions

### **3.3 Contributory factor/s**

3.3.1 None

## **4. SAFETY RECOMMENDATIONS**

4.1 None.

## **5. APPENDICES**

5.1 None

Report reviewed and amended by the Advisory Safety Panel on 16 February 2010

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