

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8479	
Aircraft Registration	ZS-RVV	Date of Accident	15 April 2008		Time of Accident	0745Z
Type of Aircraft	Schweizer 269C		Type of Operation	Private		
Pilot-in-command Licence Type		Commercial Pilot (H)	Age	25	Licence Valid	Yes
Pilot-in-command Flying Experience		Total Flying Hours	3297,9		Hours on Type	521,3
Last point of departure		Private farm near Baltimore (Limpopo)				
Next point of intended landing		Private farm near Baltimore (Limpopo)				
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
In an open field with thorn bushes near Baltimore (Limpopo) GPS: S23° 17.513' E028° 16.552'						
Meteorological Information		The weather was fine; Temp. 28° C; Wind 12 knots; Visibility clear				
Number of people on board	1 + 0	No. of people injured	0	No. of people killed	0	
Synopsis						
<p>The pilot was on a private flight as a sole occupant when the accident occurred. He stated that he manoeuvred the helicopter at approximately 100 feet above ground level (AGL) when the engine suddenly backfired (ran rough). The helicopter was too close to the ground to perform a successful autorotational landing.</p> <p>Upon touchdown, the main rotor blades struck a thorn tree and the helicopter rolled over to its right side. The main rotor blades were bent and the bubble windscreen damaged.</p> <p>The main rotor blades were substantially damaged. The pilot sustained no injuries in the accident.</p>						
Probable Cause						
<p>Engine failed following a sudden turn resulting in an unsuccessful autorotation landing from a low altitude. The cause of the engine failure could not be determined.</p>						
IARC Date				Release Date		

AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : African Bronze Art Foundry CC
Manufacturer : Schweizer
Model : 269C
Nationality : South African
Registration Marks : ZS-RVV
Place : Private farm near Baltimore (Limpopo)
Date : 15 April 2008
Time : 0745Z

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 On 15 April 2008, the pilot reported that he was manoeuvring the helicopter at approximately 100 feet AGL near a wire fence when he saw something move on his left, which looked like a leopard. The pilot stated that the aircraft's speed was approximately 40 knots when he initiated a left turn to investigate the moving object. The engine suddenly started to run rough before it stopped. The helicopter was too close to the ground to perform a successful autorotation landing.
- 1.1.2 Upon touchdown, the main rotor blades struck a thorn tree and the helicopter rolled over to its right side.
- 1.1.3 The helicopter sustained substantial damage. The pilot did not sustain any injuries.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The helicopter sustained substantial damage in the accident.



Fig 1: Aircraft after the accident

1.4 Other Damage

1.4.1 No other damage was caused in the accident.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	25
Licence Number	*****	Licence Type	Commercial (H)		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Cull Rating – Game/Livestock cull rating				
Medical Expiry Date	31/05/2008				
Restrictions	Corrective lenses				
Previous Accidents	None				

Flying Experience:

Total Hours	3297,9
Total Past 90 Days	93,3
Total on Type Past 90 Days	81,8
Total on Type	521,3

1.6 Aircraft Information

1.6.1 Airframe:

Type	Schweizer Aircraft Corporation	
Serial Number	S1481	
Manufacturer	Schweizer	
Date of Manufacture	10/01/1997	
Total Airframe Hours (At time of Accident)	3818,2	
Last MPI (Date & Hours)	3726,6	04/12/07
Hours since Last MPI	91,6	
C of A (Issue Date)	05/02/1997	
C of R (Issue Date) (Present owner)	30/03/2000	
Operating Categories	Standard (Part 127)	

The Schweizer has a fully articulated, counter-clockwise rotating, three-bladed main rotor, and a two-bladed tail rotor, that are distinctive characteristics of all its variants. It also has shock absorber-dampened, skid-type landing gear. The flight controls are directly linked to the control surfaces of the helicopter, so there are no hydraulic systems in the 269.

1.6.2 Engine:

Type	Lycoming HIO-360-D1A
Serial Number	L-25926-51A
Hours since New	2862,5
Hours since Overhaul	189,4

The Schweizer is powered by a 190 hp (141 kW) Lycoming HIO-360-D1A, fuelled with 100LL grade aviation gasoline (Avgas), and it is fuel-injected.

1.6.3 The helicopter was inspected, and 18 litres of aviation fuel was found in the two fuel tanks; however, no sign of fuel contamination was found.

1.7.1 Meteorological Information

1.7.1 Weather information as obtained from the pilot questionnaires.

Wind direction	NE	Wind speed	12 kts	Visibility	Clear
Temperature	28°C	Cloud cover	Nil	Cloud base	unknown
Dew point	unknown				

1.8 Aids to Navigation

1.8.1 The helicopter was equipped with standard navigational equipment as per the equipment list approved by the Regulator. There were no recorded defects to navigational equipment prior to the flight.

1.8.2 The accident occurred away from an aerodrome in an open field; land aids to navigation were therefore not applicable.

1.9 Communications

1.9.1 The helicopter was equipped with VHF radio communications equipment as per equipment list approved by the Regulator. There were recorded defects to the communication equipment prior to the flight.

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

1.10 Aerodrome Information

1.10.1 The accident happened on an open field near Baltimore (Limpopo). The GPS coordinates were: S23° 17.513' E028° 16.552'.



Fig 2: Open field where helicopter landed

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 by regulations to be fitted to this type of helicopter.

1.12 Wreckage and Impact Information

1.12.1 The pilot initiated a left turn to check the movement of what appeared to be a leopard and the engine suddenly backfired (ran rough) and stopped. The pilot was too low to initiate an autorotational landing. The main rotor blades struck a tree and the aircraft came to rest on its right side.

1.12.2 The helicopter sustained substantial damage in the accident. The damage was to the main rotor blades and the right skid, and the windshield was broken.



Fig 3: Main rotor struck a thorn tree

1.13 Medical and Pathological Information

1.13.1 The pilot was not injured in the accident.

1.14 Fire

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

1.15 Survival Aspects

1.15.1 The accident was considered to be survivable as the cockpit/cabin area remained intact (undamaged) and the pilot was properly restrained with safety belts and harnesses at the time of the accident.

1.16 Tests and Research

1.16.1 The engine was taken to an approved aircraft maintenance organisation (AMO) for testing. It ran satisfactorily and no other defects were found.

1.16.2 The helicopter was inspected and 18 litres of aviation fuel was found in the tanks and no sign of fuel contamination was found. Tank capacity is about 30 US Gallons fuel capacity (113 litres). This would imply that only about 9 litres of fuel may have been available per tank.

1.16.3 The helicopter feeds on both tanks at the same time (Fuel selector on BOTH); helicopter is configured with twin fuel tanks, one on either side of the main rotor mask.

1.16.4 The unusable fuel per tank is about 0.2 Gallons (0.75 Litres).

1.16.5 The helicopter burns about 11 Gallons per hour (42 litres) so the helicopter had less than 30 minutes of fuel left in the tanks limiting but not excluding the possibility of fuel starvation occurring during a sudden turn.

1.16.6 The possibility of carburettor icing was investigated and eliminated as the Schweizer 269 C is fuel-injected.

1.17 Organizational and Management Information

1.17.1 This was a private flight.

1.17.2 According to available records, the AMO that certified the last MPI on the helicopter prior to the accident was in possession of a valid AMO approval.

1.18 Additional Information

1.18.1 None.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 History

The pilot reported that he was manoeuvring the helicopter at approximately 100 feet AGL near a wire fence when he saw a movement on his left which looked like a leopard. He stated that his speed was approximately 40 knots when he initiated a left turn to investigate the movement; the engine ran rough before it stopped.

The helicopter was too low above ground to perform an auto rotational landing.

Upon touchdown, the main rotor blades struck a thorn tree, and the helicopter rolled over to its right.

2.2 Machine

The engine was taken to an approved AMO for testing. It ran satisfactorily and no other defects were found.

The possibility of carburettor icing was investigated and eliminated as the Schweizer 269 C is fuel-injected.

The helicopter was inspected and 18 litres of aviation fuel was found in the tanks and no sign of fuel contamination was found. The helicopter has 32 Gallons fuel capacity (87 litres) contained in two fuel tanks.

It was then concluded that the engine probably failed because of an unknown factor as all possibilities that could have caused it to fail were eliminated.

2.3 Environment

The weather was reported to be fine with clear skies, the temperature was 28° C and visibility was more than 1000 metres measured from the ground. The weather did not contribute to this accident.

2.4 Man

The pilot initiated a left turn to investigate a movement at approximately 100 feet above ground and the engine ran rough before it stopped. Upon touchdown, the main rotor blades struck a small thorn bush, and the helicopter rolled over to its right.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot was engaged on a private flight.
- 3.1.2 The pilot was a holder of a valid commercial helicopter pilot's licence and correctly type-rated.
- 3.1.3 The pilot held a valid medical certificate with restrictions that required him to wear corrective lenses.
- 3.1.4 The aircraft had flown 91,6 hours since its last MPI and was considered to be airworthy prior to the accident.
- 3.1.5 The maintenance records indicated that the aircraft had been maintained in accordance with existing regulations and procedures.
- 3.1.6 The weather was reported to be fine at the time of the accident and it did not contribute to the accident.
- 3.1.7 The engine was taken to an approved AMO for testing; it ran satisfactorily and no other defects were found.
- 3.1.8 18 litres of aviation fuel was found in the fuel tanks with no sign of fuel contamination.
- 3.1.9 The cause of the engine stoppage could not be determined without any doubt.

3.2 Probable Cause/s

- 3.2.1 Engine failed following a sudden turn resulting in an unsuccessful autorotation landing from a low altitude. The cause of the engine failure could not be determined.

4. SAFETY RECOMMENDATIONS

- 4.1 None

5. APPENDICES

- 5.1 None.

Report reviewed and amended by the Advisory Safety Panel 16 November 2010.

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