



LIMITED ACCIDENT INVESTIGATION REPORT
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Reference Number		CA18/2/3/10133					
Classification	Accident	Date	10 March 2022	Time	0900Z		
Type of Operation	Game Capturing (Part 137)						
Location							
Place of Departure	Paul Roux Game Farm, Free State Province		Place of Intended Landing	Paul Roux Game Farm, Free State Province			
Place of Occurrence	Open field in Paul Roux game farm, Free State Province						
GPS Co-ordinates	Latitude	S28° 12'.10. 2"	Longitude	E027°53'.05.9"	Elevation	5000 feet	
Aircraft Information							
Registration	ZS-HED						
Model/Make	Schweizer 269C (Serial Number: 111020)						
Damage to Aircraft	Destroyed		Total Aircraft Hours	1672.5			
Pilot-in-command							
Licence Valid	Yes	Gender	Male	Age	30		
Licence Type	Commercial Pilot Licence (CPL) Helicopter						
Total Hours on Type	700		Total Flying Hours	2572.50			
People On-board	1 + 0	Injuries	1	Fatalities	0	Other (On Ground) 0	
What Happened							
<p>On Thursday morning, 10 March 2022, a pilot on a Schweizer 269C helicopter with registration ZS-HED took off on a game capturing mission from Paul Roux game farm near Bethlehem, Free State province, with the intention to return to the same farm. Visual meteorological conditions (VMC) by day prevailed in the area around the time of the flight. The flight was conducted under Part 137 of the Civil Aviation Regulations 2011 as amended.</p> <p>The pilot stated that he performed a pre-flight inspection on the helicopter, and nothing abnormal was found. The helicopter had about 70 litres (l) of Avgas 100LL fuel in the tanks. After start-up and making sure that the engine indications were normal, the helicopter lifted off and routed towards the direction of the blesboks (antelopes), travelling at 15 knots indicated air speed (KIAS). After spotting the antelopes, the pilot forced them towards the boma. The pilot stated that he struggled with a few animals which kept on running in the opposite direction. He then decided to ignore those few animals that were running in the opposite direction and focused on those ahead</p>							

of him in the direction of the boma. While flying in the direction of the boma, about a foot (ft) above ground level (AGL), the pilot felt a bump which originated from the tail section.

He then pulled the collective pitch lever with the intention to climb, but without success. The helicopter entered a spin that the pilot could not recover from and the helicopter impacted the ground very hard on an open piece of farm land. The pilot switched off the master before disembarking the wreckage unassisted. The helicopter was destroyed during the accident sequence. There was no pre- or post-impact fire. The pilot called the owner of the aircraft on his mobile phone. The emergency response plan was activated following the accident notification and a Robinson R44 helicopter was dispatched to the accident scene. The pilot sustained serious injuries; he was later transported to Bethlehem Mediclinic in Bloemfontein for medical attention. According to the pilot, the duration of the flight was about 30 minutes.



Figure 1: The helicopter at the accident site. (Source: Operator)

Part 137.02.6 Operation over non-populous area:

Notwithstanding the provisions of Part 91, a pilot of an aircraft engaged in an agricultural or fire-fighting operation may, during or for the purposes of the operation, fly at any altitude and at any distance from an obstruction if—

- (a) the operation is not conducted over a populous area;
- (b) the operation is conducted without creating a hazard to persons or property on the ground; and
- (c) the altitude and distance for all approaches, turns and departures are necessary for the operation.

Wreckage examination at the accident site:

Post-accident examination of the wreckage indicated that the cockpit area, including the instrument panel, was destroyed on impact. The collective pitch lever was found in the full-up position, and the twist grip was on maximum power setting. The fuel tanks were intact with no fuel leakages noted. The cycle control stick remained intact and the anti-torque pedals displayed distortion associated with ground impact. Examination of the main rotor blades showed that the engine was producing a substantial amount of power at the time of the accident. The transmission drive clutch assembly was found in the engaged position and all the transmission drive belts were found intact with no signs of having slipped/snapped during operation.

The tail rotor driveshaft had failed in torsional overload. The tail rotor assembly had separated from the tail-cone. One tail rotor blade remained attached to the rotor hub and was intact. No evidence was found of any possible defect or malfunction on the flight control system.

A search around the accident site was initiated and a dead antelope with a large wound on its head was found. The other tail rotor blade that separated from the rotor hub was found next to the antelope. There were signs that the antelope had just been killed; the injury on the head was attributed to the tail rotor strike.



Figure 2: The tail rotor and gearbox with one blade missing. (Source: Operator)

Records indicated that the pilot had accumulated 2572.50 hours total time on all aircraft types with 700 hours on the helicopter type. The pilot was issued a Class 1 aviation medical certificate on 15 February 2022 with an expiry date of 28 February 2023. There were no restrictions listed in the pilot's medical certificate. The pilot's logbook hard copies emailed to the investigator-in-charge (IIC) showed that he had the helicopter type endorsed on his logbook and was initially issued a game rating on 12 August 2013. The renewal for the game rating was certified on 15 February

2021 and was overseen by the South African Civil Aviation Authority (SACAA) approved designated flight examiner (DFE).

Post-accident examination of the helicopter's maintenance records and other documentation revealed no abnormalities or defects, and confirmed that the helicopter was maintained in accordance with (IAW) the approved procedures. The last mandatory periodic inspection (MPI) on the helicopter was certified on 18 February 2022 at 1646.8 hours. The maintenance work pack showed that all the manufacturer's applicable service bulletins (SB), service letters (SL) and airworthiness directives (AD) were complied with. Examination of the helicopter's flight folio indicated no open or differed maintenance items listed before the accident flight.

The game capturing operation was conducted on a private capacity and the helicopter was not listed in any of the air operating certificates (AOC).

Probable cause:

The helicopter's tail rotor impacted an antelope while flying close to the ground during a game capture operation; the helicopter spun out of control, rendering ground impact inevitable.

Contributory factor:

Disregard of Part 137.02.6 of the Civil Aviation Regulations 2011 as amended.

Safety Action/s

None.

Safety Message and/or Safety Recommendation/s

None.

Purpose of the Investigation

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 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 apportion blame or liability**.*

About this Report

Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar accident.

This report provides an opportunity to share safety message/s in the absence of an investigation.

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.

Disclaimer

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This report is issued by:

**Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa**