



REPUBLIC OF NAMIBIA

MINISTRY OF WORKS AND TRANSPORT

**DIRECTORATE OF AIRCRAFT ACCIDENT AND
INCIDENT INVESTIGATION**

CIVIL AIRCRAFT ACCIDENT REPORT

09082020
ACCID / ~~08092020~~ / 01-01

OPERATION	:	PRIVATE
AIRCRAFT	:	HELICOPTER
LOCATION	:	B2 GOLDMINE
DATE	:	08 SEPTEMBER 2020



REPUBLIC OF NAMIBIA

MINISTRY OF WORKS AND TRANSPORT

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AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATIONS

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Our Ref: 3/48

Date: 23 October 2020

To : Honorable Minister of Works and Transport

From : Director: Aircraft Accident and Incident Investigations

RE: AIRCRAFT INCIDENT REPORT

Please find attached the final report on the above subject accident. In accordance with the International Civil Aviation Organization Annex 13 – Aircraft Accident and Incident Investigation – Standard 6.13, final reports shall be published as soon as possible in the interest of accident prevention.

It is recommended that copies of these final reports be made available to the public and other interested parties upon request. Your approval is therefore sought to release the said reports.

Magnus Abraham

DIRECTOR: AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATIONS

"Effective and Efficient Delivery of Service"

All official correspondence must be addressed to the Executive Director

FOREWORD

This report presents the factual information, data analysis, conclusions, and safety recommendations reached during the investigation. The purpose of the investigation was to establish the circumstances surrounding this accident.

In accordance with the provisions of Annex 13 to the Convention on International Civil Aviation Organization, the accident's analysis, conclusions, and safety recommendations contained therein are intended neither to apportion blame nor to single out any individual or group of individuals. The main objective was to identify the systematic deficiencies and draw lessons, from the occurrence, which might help to prevent accidents and incidents in the future. To this end, many a time, the reader may be interested in whether or not an issue was a direct cause of the accident (that has already taken place), whereas the investigator is mainly concerned with the prevention of future accidents/incidents.

As a result, usage of this report for any purpose other than (the letter and spirit of Annex 13 and other relevant statutes) prevention of similar occurrences in the future might lead to erroneous interpretations and applications.



ACCID / 08092020/0 1-01

MINISTRY OF WORKS AND TRANSPORT
ACCIDENT REPORT – EXECUTIVE SUMMARY

Aircraft Registration	V5-HIK	Date of Accident	08 Sept 2020		Time of Accident	06:40 UTC
Type of Aircraft	SCHWEIZER 269		Type of Operation		Game capture	
Pilot-in-command license type		Commercial pilot	Age	30	License valid	Yes
Pilot-in-command flying experience		Total flying hours	1158.0		Hours on type	875.0
Last point of departure		Farm Felsenquelle 507 South of Otavi Namibia				
Next point of intended landing		Farm Felsenquelle 507 South of Otavi Namibia				
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Farm Felsenquelle No 507 B2 Gold Mine 30km South of Otavi Otjozondjupa Region S 20.01.32 E 017.06.35						
Meteorological Information		CAVOK				
Number of people on board		1	No. of people injured	1	No. of people killed	0
Synopsis						

On Tuesday morning 08 Sept 2020 around 06:30 UTC, a Schweizer 269 helicopter with Reg No. V5-HIK took off from a farmstead next to the B2 Goldmine with 1 crew onboard. The intention was to capture game in the Mining area. During this low-level flight very near to the boma, the helicopter had an engine failure. The pilot executed an autorotation maneuver for landing. However due to insufficient height, the landing phase was not conducted properly and the helicopter crashed. A game capture support team which accompanied the helicopter in the area responded to the crash site after the helicopter crashed. The helicopter was found destroyed. The pilot was slightly injured but stuck in the wreckage and removed by the ground team.

The weather at the time of the accident was CAVOK with light winds and unlimited visibility.

The Directorate of Aircraft Accident and Incident Investigation (DAAII) in Namibia was informed of the accident and an official investigation commenced as the State of Occurrence the next day.

The last Annual Inspection (AI) was carried out and certified on 10 August 2020 in accordance with the Schweizer Helicopter Maintenance Manual and NAM CARS 2001 by a Namibian AMO No.051 with approval No. 0781 issued on the 20 August 2019 with the expiry date of the 24 August 2020, at the total of 7792.5 airframe hours (5595.6 Hobbs). The approval was issued in accordance with Part 145 of the Nam Cars 2001. At the time of the accident the helicopter had accumulated a further 61.3 hours since the last (AI) was certified.

Probable Cause

Engine failure during flight.

Contributing factors



AIRCRAFT ACCIDENT REPORT

Name of Owner / Operator : Namibia Helicopter Services
Manufacturer : Schweizer Aircraft Corp
Model : Schweizer 269
Nationality : NAMIBIAN
Registration Marks : V5-HIK
Place : B2 Gold Mine Namibia
Date : 08 September 2020

All times given in this report is Co-ordinated Universal Time (UTC), unless otherwise stated.

Disclaimer:

The report is produced without prejudice to the rights of the Directorate of Aircraft Accident and Incident Investigations, which are reserved.

Purpose of the Investigations:

In terms of the aviation Act (act No 6 of 2016) and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of risk of aviation accident or incidents and **not to apportion blame or establish legal liability.**

This report contains fact relating to aircraft accidents or incidents which have been determined at the time of issue.

The report may therefore be revised should new and substantive facts be made available to the investigator.

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 On 08 September 2020 around 06:30 UTC, a Schweizer 269 helicopter with registration No. V5-HIK took off from the Farm Felsenquelle No 507, 30 km south of Otavi with one pilot on board. The intention was to continue game herding into a boma of antelopes in the area. A support ground team was also in the area available.
- 1.1.2 The prevailing weather was CAVOK with light winds and unlimited visibility.
- 1.1.3 The helicopters arrived after a short flight at the boma area and prepared for landing to refuel again. The pilot suddenly experienced a complete engine failure and executed an autorotation with immediate effect. With only 300 feet above ground, the manoeuvre did not work well and the helicopter struck the ground with a forward rolling motion.
- 1.1.4 The helicopter's tail rotor gearbox separated with the main rotor blades cutting of the tail boom. In the tumbling movement followed, the helicopter was destroyed.
- 1.1.5 The ground crew witnessed the accident from a distance and responded to the accident site to render help to the pilot.

- 1.1.6 The pilot sustained minor injuries. The pilot was stuck in the wreckage. After removing him, he was taken to the Otjiwarongo hospital 70 km away for observation.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

- 1.3.1 The helicopter was destroyed on impact.



Image 1

1.4 Other Damage

- 1.4.1 No other damage was caused.

1.5 Personnel information

Nationality		Namibian			
Licence No	CR 73041	Gender	Male	Age	30
Licence valid		Yes	Type endorsed	Yes	
Ratings		Game capture			
Medical expiry date		31 Jan 2021			
Restrictions		None			
Previous accidents		Not known			

Flying Experience:

Total hours	1158.0
Total past 90-days	60.1
Total on type past 90-days	25.6
Total on type	875.0

1.6 Aircraft information



Image 2 – File photo for illustration purposes.

Airframe:

Type	Schweizer 269	
Serial No.	300907	
Manufacture	Schweizer Aircraft Corp, 269 C	
Year of manufacture	1995	
Total airframe hours (at time of accident)	7792.5	
Last annual inspection (hours & date)	5695.6	10 Aug 2020
Hours since annual inspection	61.3	
Authority to Fly (issue date)	27 Feb 2009	
Authority to Fly (expiry date)	04 March 2021	
C of R (issue date) present owner	27 March 1995	
Operating categories	Standard D,E,F	

Engine:

Type	Lycoming H IO 360 D 1A
Serial No.	L-225783 – 51 A
Hours since New	3612.2
Hours since Overhaul	190.2

Main rotor:

Type	N/A
Serial No.	N/A
Hours since New	1949.5
Hours since Overhaul	T.B.O. not yet reached

1.7 Meteorological Information

1.7.1 DAAII did not obtain a weather report for the area as no weather satellite stations were available .

1.8 Aids to navigation

1.8.1 The aircraft was equipped with standard navigation equipment and a panel mounted GPS.

1.9 Communications

1.9.1 The aircraft was equipped with standard communication equipment for this type.

1.10 Aerodrome information

1.10.1 The accident occurred on a farm.

1.11 Flight recorders

1.11.1 The aircraft was not equipped with a flight data logger (FDR) or a cockpit voice recorder (CVR) nor was it required for this type of helicopter.

1.11.2 The GPS model did not make provision for data downloads.

1.12 Wreckage and impact information

1.12.1 The accident took place in an open grassland pan.



Image 3 The helicopter was destroyed on impact and ended up in the upright position.



Image 4 Tail rotor blades shows low rotational speed impact damage.



Image 5 Tail boom was struck and destroyed by the main rotor blades during excessive flare in landing phase.

1.13 Medical and pathological information

1.13.1 The pilot sustained minor 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 deemed to be survivable due to the slow forward speed of the helicopter.



Image 6 The pilot was still strapped in the 5 point harness where the helicopter ended upright.

1.16 Tests and research

1.16.1 Several tests on various systems were carried out on the engine for the investigation.

1.16.2 Technical assistance was obtained from a local AMO Engineer to clarify engine component failure possibilities.

1.16.3 The helicopter was retrieved from the investigation site. The engine of the above helicopter was reported to have failed in flight prior to impacting the ground, resulting in major damage to the aircraft.

1.16.4 The wreck was mounted and secured on a stand for investigation. The cylinder compressions were tested, all cylinders were inspected with an endoscope camera, the magnetos were removed and tested on the bench, all spark plugs were tested, ignition timing was verified, magnetic switch and wiring was tested, both fuel tanks supply strainers were removed and confirmed clean, fuel tanks did not show evidence of water accumulation, the fuel injector was removed and inspected, all fuel lines to the engine were confirmed serviceable, clean residual fuel (AVGAS) was found in fuel components with no contamination evident, the mechanical fuel pump was removed and inspected, fuel shut off valve was inspected, the oil filter was cut open for inspection; no metal or foreign material found. The engine was started and operated up to normal power for operation with all parameters indicating normal.

1.16.5 All tests above did not reflect any abnormality and the engine was found to operate satisfactory through the power range. ***The fuel supply line from the left (Aux) tank was found loose on the fitting connecting to the fuel shut-off valve. No EGT system installed and Temperature increase could not be observed.***

1.16.6 The loose fitting at the fuel shut –off valve may have caused air to enter the fuel line and cause cavitation on the fuel pump, which may have resulted in a lean fuel mixture leading to a lean cut condition.

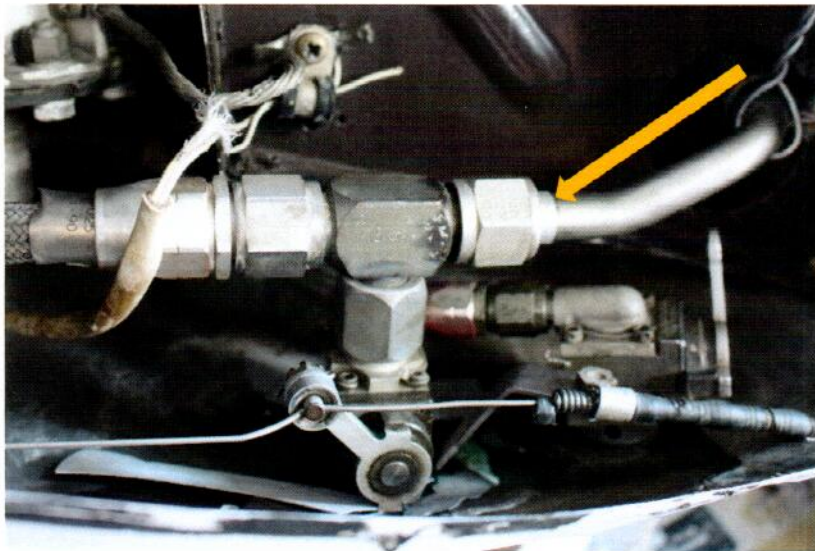


Image 7 Coupling nut of reserve fuel supply line found loose.

1.17 Organizational and management information

- 1.17.1 The helicopter was owned by Namibia Helicopter Services and utilized for game capture work.
- 1.17.2 The company had a valid AOC that expired on the 30 August 2020
- 1.17.3 The helicopter was insured and the insurer rendered assistance to the recovery of the wreckage for the teardown of the engine.
- 1.17.4 The helicopter was backed up by a groundteam which responded quickly to the scene of the accident to render assistance to the injured pilot.
- 1.17.5 The company had an Emergency plan and it was executed satisfactory.

1.18 Additional Information

- 1.18.1 None.

1.19 Useful or effective investigation techniques

- 1.19.1 None.

2. ANALYSIS

- 2.1 On the 08 September 2020 a Schweizer 269 helicopter was involved in game capture operations on the Farm Felsenquelle No 507, 30 km South of Otavi in the Otjozondjupa Region. The helicopter took off from the farmstead for a short ferry flight to the boma to refuel before capture flights will commence.
- 2.2 Only the pilot was on board the helicopter.
- 2.3 During the flight sector arriving at the boma the helicopter experienced a total engine failure. The pilot with only 300 ft above ground executed an autorotation for the emergency landing. The helicopter struck the ground with some forward speed in a hard landing which was followed with a forward tumbling motion.

- 2.4 The helicopter's tail rotor separated while the main rotor struck the boom. The helicopter was destroyed subsequently.
- 2.5 The ground crew which was nearby observed this manoeuvre and immediately rushed to the scene to render assistance to the pilot.
- 2.6 The helicopter was destroyed, however the pilot was still alive and was subsequently removed from the wreckage by the ground crew which alerted the owner of the helicopter to start the emergency response plan accordingly.
- 2.7 The pilot was taken by road to Otjiwarongo hospital 70 km away for observation.
- 2.8 The weather was fine in the area with unrestricted visibility and did not play a role in the accident.
- 2.9 The investigation revealed that the pilot had sufficient training on game capture operations and a recent flight test with a valid medical to his licence. The pilot does not have known accidents to his records.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot was the holder of a valid helicopter pilot licence and validated by the NCAA as per regulation. A game capture rating is endorsed in his logbook. The medical certificate was valid at the time of the accident.
- 3.1.2 The pilot flew a flight test on the 21 November 2019 with a DE Nr. TR 0020
- 3.1.3 The pilot flew a company proficient test on 16 May 2020.
- 3.1.4 The pilot had certification for Dangerous goods and Cockpit Resource Management.
- 3.1.5 The pilot had a valid Radio licence in his pilot licence which expires on 07 December 2021.
- 3.1.6 The Schweizer 269 helicopter was certified for VFR flight conditions and game capture operations.
- 3.1.7 The helicopter's flight folio and maintenance records did not show any recent problem issues or occurrences since the last MPI and was serviceable at the time of the accident.
- 3.1.8 The helicopter had 90 Lbs. (50 Lts) of fuel on board when it crashed.
- 3.1.9 The weight and balance of the helicopter was within limits during the crash.
- 3.1.10 The loose fitting at the fuel shut-off valve may have caused air to enter the fuel line and cause cavitation on the fuel pump that could have led to a lean fuel mixture cut condition.

3.2 Probable cause

- 3.2.1 Engine failure during flight.

4. SAFETY RECOMMENDATIONS

- 4.1 None

Compiled by:

O.V. Plichta

O.V. Plichta

Investigator-in-charge

Date: 21 October 2020

Released by:

[Signature]
John Mutorwa (MP)

MINISTER: MINISTRY OF WORKS AND TRANSPORT

Date: 28.10.2020

