

PRELIMINARY ACCIDENT REPORT

Accident and Incident Investigations Division

Accident  
- Preliminary Report -  
AIID Ref No: CA18/2/3/10590



Figure 1: File picture of ZS-HFH helicopter. (Source: <https://www.avcom.co.za>)

Description:

On Sunday morning, 22 June 2025, a pilot on-board a Robinson R44 Raven II helicopter with registration ZS-HFH took off to conduct a frost-protection operation on a 30.2-hectare blue berries field at Metsi Berries Farm in Modimolle-Mookgophong Local Municipality, Limpopo province, with the intention to land at the same farm.

The farm production manager stated that he received an alert on his mobile phone at 0120Z whilst on standby at the farmstead. The alert was that the temperature in the berry field that was covered in a shade netting had dropped below freezing point, and that the berries were susceptible to frost damage and spoilage. The use of the helicopter was, therefore, required to correct the temperature in that area. The production manager notified the pilot who was also at the farmstead at the time. The duo drove to the area where the helicopter was parked overnight. Upon arrival, the pilot performed a pre-flight inspection of the helicopter, and no anomalies were noted. The helicopter had 180 litres (L) of Aviation Gasoline (Avgas) LL100 in the tanks. Before the pilot could start the engine, the production manager drove to the field where the crops needed to be defrosted, approximately

50 metres (m) from where the helicopter was parked. After a few minutes, he heard the helicopter engine being started. The helicopter lifted off and flew south-easterly. In less than two minutes after take-off, the lights of the helicopter disappeared behind some tall trees and from his line of sight. Thereafter, he heard a loud bang approximately 600m from the lift-off point. The production manager instantly drove to the direction from where the loud bang had come. After reaching that area, he used his torch and spotted the helicopter almost fully submerged in a flooded ditch; the tail boom was tilted up. He then called out the pilot's name, but there was no response; there was also no movement around the accident site. The pilot was fatally injured, and the helicopter was destroyed during the accident sequence.

## Occurrence Details

Reference Number	: CA18/2/3/10590
Occurrence Category	: Accident (Category 1)
Type of Operation	: Agricultural Operations (Part 137)
Name of Operator	: Limair
Aircraft Make and Model	: Robinson Helicopter Company; R44 Raven II
Nationality	: South African
Registration Marks	: ZS-HFH
Place	: In a flooded ditch, approximately 600 metres (m) from departure point
Date and Time	: 22 June 2025, 0202Z
Injuries	: Fatal
Damage	: Destroyed

## 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.*

*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.*

## Investigation Process

The Accident and Incident Investigations Division (AIID) was notified of the occurrence involving a Robinson R44 Raven II helicopter, approximately 600 metres (m) from the departure area on the borders of Metsi Berries Farm in Modimolle-Mookgopong Local Municipality, Limpopo province, on 22 June 2025 at 0202Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) STD Annex 13 definitions. Notification was sent to the State of Registry, Operator, Design and Manufacturer in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. Investigators were dispatched to the accident site for this occurrence.

### Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*

*Helicopter — this investigated accident*

*Aircraft — the Robinson R44 Raven II involved in this accident*

*Investigation — the investigation into the circumstances of this accident*

*Pilot — the pilot involved in this accident*

*Report — this accident report*

2. *Photos and figures used in this report were taken from different sources and may have been adjusted from the original for the sole purpose of improving clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression; or enhancement of colour, brightness, contrast; or addition of text boxes, arrows, or lines.*

*The AIID reports are made available to the public at:*

<https://www.caa.co.za/industry-information/accidents-and-incidents/>

## Disclaimer

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<b>Abbreviation</b>	<b>Description</b>
°	Degrees
°C	Degrees Celsius
AD	Airworthiness Directive
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
AOC	Aircraft Operating Certificate
ARCC	Aeronautical Rescue Co-ordination Centre
CAR	Civil Aviation Regulations
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CPL	Commercial Pilot Licence
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
EMS	Emergency Medical Services
FATP	New Tempe Aerodrome
FAPP	Polokwane Gateway Airport
FDR	Flight Data Recorder
Ft	Feet
GPS	Global Positioning System
JHB	Johannesburg
HP	Horsepower
hPa	Hectopascal
Kt	Knots
M	Metres
MCP	Maximum Continuous Power
METAR	Meteorological Aerodrome Report
MPI	Mandatory Periodic Inspection
POH	Pilot's Operating Handbook
RPM	Revolutions per Minute
PPL	Private Pilot Licence
QNH	Altitude Above Mean Sea Level
SACAA	South African Civil Aviation Authority
SAPS	South African Police Service
SAWS	South African Weather Service
SB	Service Bulletin
SID	Supplementary Inspection Documents
SL	Service Letter
TOR	Take-off Power
TSI	Technical Service Instructions
VMC	Visual Meteorological Conditions
VML	Valid only with correction for defective distant, intermediate and near vision
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

## 1. FACTUAL INFORMATION

### 1.1. History of Flight

1.1.1 On Sunday morning, 22 June 2025, a pilot on-board a Robinson R44 Raven II light utility helicopter with registration ZS-HFH took off with the intention to conduct a frost-protection operation overhead a 30.2-hectare blue berries field at Metsi Berries Farm in Modimolle-Mookgophong Local Municipality, Limpopo province. The pilot was planning to land back at the same farm. Visual meteorological conditions (VMC) by night prevailed at the time of the flight which was conducted under the provisions of Part 137 of the Civil Aviation Regulations (CAR) 2011 as amended.

1.1.2 The farm production manager stated that he received an alert on his mobile phone around 0120Z whilst on standby at the farmstead. The alert was about a drop in temperature below freezing point in the berry field that was covered in shade netting. He stated that the berries were susceptible to frost damage and spoilage in such conditions. The alert was generated by the mobile phone application (app) that was linked to the temperature probes fitted to the berry bushes. He stated: *“The use of the helicopter was, therefore, required; a helicopter is flown or hovered over the berries field and uses the downdraft from its rotors to push the warmer air from above, down towards the ground. This process raises the temperature around the trees and, thus, preventing the formation of frost.”* The production manager notified the pilot who was also at the farmstead; he was sleeping at the time. After the pilot had woken up, the duo drove to the refuelling area where the helicopter had been parked overnight. Upon arrival at the refuelling area, the pilot removed the fabric windshield cover on the helicopter and performed a pre-flight inspection, and no anomalies were noted. The production manager recalled the pilot informing him that the helicopter’s fuel gauges indicated full (180 litres [L] of Avgas LL100). However, the flight folio’s last page with serial number 5005 showed no recording of fuel upliftment on the previous day (Saturday, 21 June 2025). The last fuel upliftment entry was recorded on Saturday, 14 June 2025 at 1 313.9 total airframe hours during which the helicopter was refuelled to capacity.



**Figure 2:** One of the temperature probes fitted to the berry crops (berries not ripe yet).  
(Source: Farm production manager)

- 1.1.3 The production manager did not recall the pilot cleaning or removing frost or ice on the windshield. Before the pilot started the engine, he had already driven off to the field where the crops needed to be defrosted, approximately 50 metres (m) from where the helicopter was parked. The pilot and the production manager each used a portable two-way radio to communicate. After a few minutes, the production manager heard the engine being started as he waited for the helicopter to arrive. The helicopter lifted off and all appeared normal because the pilot did not report any defects or technical difficulties. To his surprise, the helicopter did not fly towards the 30.2-hectare field (his direction) where the berries needed to be defrosted; he took off south-easterly. According to the production manager, in less than two minutes, the lights of the helicopter had moved out of his line of sight beyond some tall trees; thereafter, he heard a loud bang, approximately 600m from where the helicopter had lifted off. The production manager immediately ran to his vehicle and drove towards the direction from which the loud bang had come. Upon arrival, he used his torch to scan the area and he spotted the helicopter that was almost fully submerged in a flooded ditch; the tail boom was tilted up. He then called out to the pilot, but there was no response. Furthermore, there was no movement around the accident site.
- 1.1.4 The production manager drove back to where the helicopter had initially lifted off as there was no mobile phone reception/network around the accident site. Thereafter, he called the emergency services in Limpopo province and the Aeronautical Rescue Co-ordination Centre (ARCC) in Johannesburg (JHB), Gauteng province. A full-scale emergency response was initiated. The Limpopo Emergency Medical Services (EMS), the search and rescue team and the South African Police Service (SAPS) Water Wing officers responded to the accident scene on Sunday morning around 0845Z. Upon their arrival, they examined the surrounding area and noticed some of the helicopter seats/upholstery and few pages of the Pilot's Operating Handbook (POH) floating on the water. The SAPS divers swam to the wreckage and found the pilot still harnessed to his seat; he was fatally injured. The pilot's body was retrieved from the wreckage and handed over to the pathology services in Limpopo province. The helicopter was destroyed by post-impact forces during the accident sequence.
- 1.1.5 The accident occurred in a flooded ditch which stretched through the borders of Metsi Berries Farm in Modimolle-Mookgopong at Global Positioning System (GPS) co-ordinates determined to be S24°16'.40'' E28°39'.38'', at an elevation of 4 067 feet (ft).



**Figure 3:** Aerial view of the approximate accident site and the point of departure.  
 (Source: Google Earth)



**Figures 4 and 5:** A picture of the helicopter taken whilst still dark (left picture). A picture (right) taken in the morning which shows the helicopter almost fully submerged in a flooded ditch with the tail boom tilted up (right picture). (Source: Farm production manager)

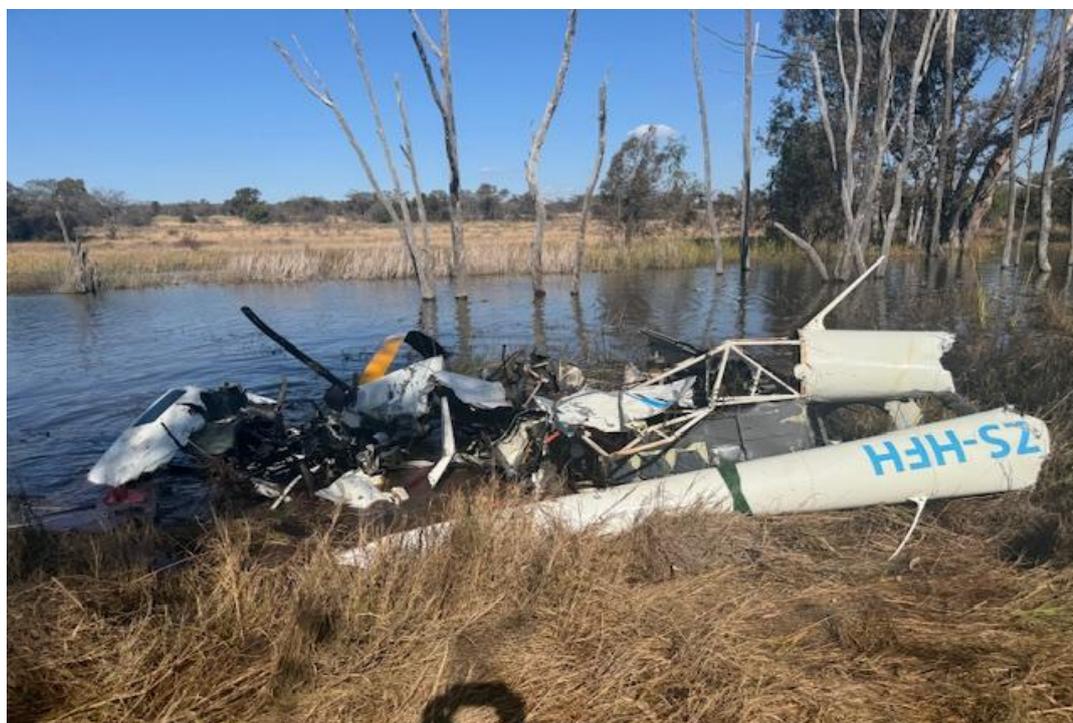
## 1.2. Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	1	-	-	1	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	-	-	-	-	-
<b>Total</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>

Note: Other means people on the ground.

## 1.3. Damage to Aircraft

1.3.1. The helicopter was destroyed during the accident sequence.



**Figure 6:** The wreckage after it was recovered from the flooded ditch.

## 1.4. Other Damage

1.4.1. None.

## 1.5. Personnel Information

Nationality	Dutch	Gender	Male	Age	39
Licence Type	Commercial Pilot Licence (CPL) Helicopter				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Night rating (H)				
Medical Expiry Date	31 October 2025				
Restrictions	None				
Previous Accidents	None				

Note: Previous accidents refer to past accidents the pilot was involved in, when relevant to this accident.

### Flying Experience:

Total Hours	2 086.8
Total Past 24 Hours	1.2
Total Past 7 Days	1.2
Total Past 90 Days	45
Total on Type Past 90 Days	45
Total on Type	1 512.4

- 1.5.1 The pilot conducted his Private Pilot Licence (PPL) training in New Tempe Aerodrome (FATP) in Free State province from September 2015 to January 2016 in a Robinson R22 helicopter. The pilot was initially issued a PPL (helicopter) on 5 January 2016. He completed his conversion to a R44 model in November 2016 and maintained a high level of currency in both models up to the time of the accident. In January 1998, he completed the required night training necessary for a night rating for which he qualified on 7 May 2019.
- 1.5.2 Records indicated that the pilot had a Commercial Pilot Licence (CPL) that was issued by the Regulator (SACAA) on 29 November 2019. The CPL was reissued on 28 October 2024 with an expiry date of 30 November 2025. The pilot had a Class 1 medical certificate that was issued on 9 October 2024 with an expiry date of 31 October 2025. The pilot had no restrictions on his licence. The helicopter type was endorsed on his licence.
- 1.5.3 The pilot accumulated 2 086.8 total flying hours of which 1 512.4 hours were on the helicopter type (R44, Raven II). The pilot's last proficiency night rating check flight was performed under the operator on 11 June 2025 during which 2.2 hours of frost-protection flight exercise was conducted. The pilot was found competent and the pilot's Proficiency Check Certificate was issued on 11 June 2025 with an expiry date of 10 December 2025.

## 1.6 Aircraft Information

### 1.6.1 Helicopter Description (Source: Pilot's Operating Handbook [POH])

*The Robinson R44 Raven II is a four-seat, single main rotor, single engine helicopter manufactured by Robinson Helicopter Company based in Southern California. The primary fuselage is welded steel tubing and riveted aluminium sheet. The tail cone is a monocoque structure in which aluminium skins carry most primary loads. The helicopter was equipped with one Lycoming IO-540-AE1A5 six cylinder, horizontally opposed overhead-valve, air-cooled, fuel injected, wet-sump engine with serial number L-31782-48A. The engine take-off power (TOP) is rated at 260 horsepower (hp) at 2,800 revolutions per minute (RPM), which can be maintained up to a pressure altitude of 800ft. Maximum continuous power (MCP) of 235 hp can be maintained up to a pressure altitude of 4 000ft. Robinson provide pilots with the de-rated figures of 225hp and 205hp for TOP and MCP respectively at 2 718RPM. This allows the helicopter to maintain engine performance on a climb from sea level to several thousand feet before the power available will start to decay below their published TOP. The rotors are driven by the engine with a V-belt drive system and gearboxes. The drive system reduces the engine RPM of 2 718 to the main rotor RPM of 408. The engine and rotor RPM are both presented to the pilot as a percentage on the cockpit tachometer gauges, so that they are matched under normal operating conditions. An engine governor system is installed to provide automatic control of engine RPM, which will control the rotor RPM via the associated drivetrain.*

#### **Airframe:**

Manufacturer/Model	Robinson Helicopter Company / R44, Raven II	
Serial Number	10392	
Year of Manufacture	1981	
Total Airframe Hours (At Time of Accident)	3 785.5	
Last Inspection (Date & Hours)	18 December 2024	3 704.7
Airframe Hours Since Last Inspection	80.8	
CRS Issue Date	18 December 2024	
C of A (Issue Date & Expiry Date)	19 November 2018	30 November 2025
C of R (Issue Date) (Present Owner)	19 November 2018	
Operating Category	Agricultural Operations (Part 127)	
Type of Fuel Used	Avgas 100LL	
Previous Accidents	None	

Note: Previous accidents refer to past accidents the aircraft was involved in, when relevant to this accident.

**Engine:**

Manufacturer/Model	Textron Lycoming / IO-540-AE1A5
Serial Number	L-31782-48A
Part Number	PC-615-AE1A5
Hours Since New	1 204.4
Hours Since Overhaul	1 204.4

- 1.6.2 The last 100-hour mandatory periodic inspection (MPI) of the helicopter was conducted on 18 December 2024 at 3 704.7 total airframe hours. The Certificate of Release to Service (CRS) was issued on 18 December 2024 at 3 704.7 airframe hours with an expiry date of 17 December 2025 or at 3 804.7 airframe hours, whichever comes first.
- 1.6.3 The aircraft maintenance organisation (AMO) which performed the last MPI was issued an AMO Certificate on 19 November 2024 with an expiry date of 30 November 2025.
- 1.6.4 Examination of the helicopter maintenance records at the operator's facility indicated that all applicable Service Letters (SL), Airworthiness Directives (AD), Service Bulletins (SB), Technical Service Instructions (TSI) and Supplementary Inspection Documents (SID) were complied with during maintenance activities.

**1.7 Meteorological Information**

- 1.7.1 The weather information below was obtained from the farm's automatic weather station; it was recorded every hour, including around the time of the accident flight at 0200Z.

Date	Time	Temperature °C	Maximum Temperature °C	Minimum Temperature °C	Relative humidity %	Dew point temperature	Wind (km/h)	Wind Degrees	Wind direction	Min WSpd km/h	Barometric Pressure
22 Jun 2025	01:00	2.73	2.79	2.65	86.7	0.7	0.00	48	NE	0.00	1,026.0
22 Jun 2025	02:00	2.83	2.97	2.70	89.5	1.3	0.00	29	NNE	0.00	1,026.1
22 Jun 2025	03:00	2.78	3.09	2.69	90.6	1.4	0.00	29	NNE	0.00	1,026.1
22 Jun 2025	04:00	2.57	2.72	2.39	91.6	1.3	0.00	29	NNE	0.00	1,026.4
22 Jun 2025	05:00	2.20	2.35	2.06	92.4	1.1	0.00	29	NNE	0.00	1,026.5
22 Jun 2025	06:00	3.41	3.88	2.35	94.7	2.6	0.00	29	NNE	0.00	1,026.9
22 Jun 2025	07:00	4.76	5.38	3.78	95.3	4.1	0.00	29	NNE	0.00	1,027.5

- 1.7.2 The official weather report below was obtained from the South African Weather Service (SAWS). The weather information entered in the table was captured on Sunday morning, 22 June 2025 at 0200Z at Polokwane Gateway Airport (FAPP) automatic weather station. FAPP is the nearest weather station to the accident site.

Wind Direction	220°	Wind Speed	6kt	Visibility	9999m
Temperature	6°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	3°C	QNH	1027hPa		

## 1.8 Aids to Navigation

1.8.1 The helicopter was equipped with standard navigational equipment as approved by the Regulator. There were no records indicating that the navigational equipment was unserviceable prior to the flight.

## 1.9 Communication

1.9.1 The helicopter was equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system prior to the flight.

## 1.10 Aerodrome Information

1.10.1 The accident occurred on the border of Metsi Berries Farm in Modimolle-Mookgophong Local Municipality, Limpopo province, at GPS co-ordinates determined to be S24°16'.40'' E28°39'.38'', at an elevation of 4 067ft.

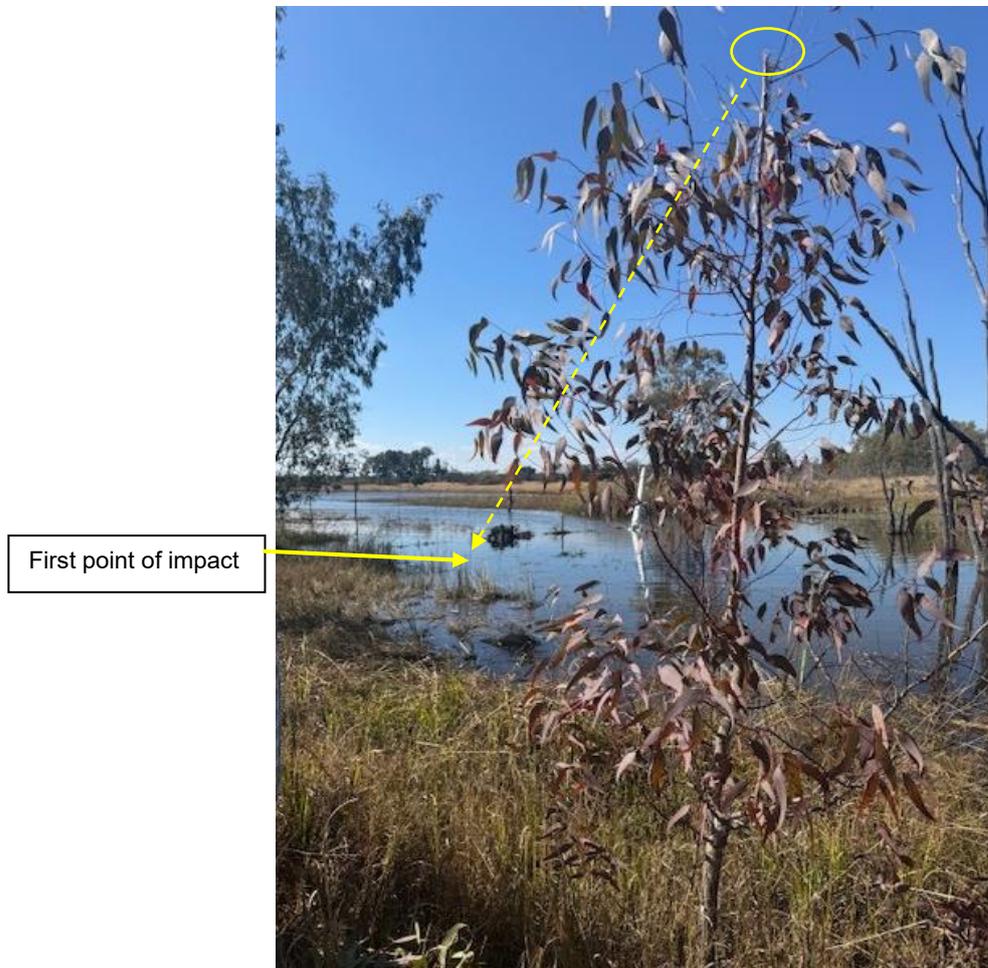
## 1.11 Flight Recorders

1.11.1 The helicopter was neither equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), nor was it required by regulation to be fitted to the helicopter type.

## 1.12 Wreckage and Impact Information

1.12.1 The accident occurred in a flooded ditch on the border of Metsi Berries Farm, approximately 600m from the lift-off point at an elevation of 4 067ft. All the major components were present at the site which indicated that nothing detached from the helicopter prior to impact. Evidence at the accident site showed that the helicopter was in a nose-down attitude before the accident. The helicopter first clipped the top of a tree with the main rotor before it crashed into the water on the side of the flooded ditch and at a heading of approximately 147°. The skid landing gears broke during the accident sequence. It was evident that a significant amount of energy at impact was absorbed by the skid landing gears. The stabiliser was severed after impact and was found close to a tree that the main rotor blade had struck. The helicopter came to rest in a flooded ditch next to a fence with the cockpit cabin area submerged in the water and the tail boom

tilted up. The tail boom structure showed compression damage. The main rotor mast and rotor head were still attached to the main gearbox. The V-belts remained attached to the upper sheave and were split between the vees. The upper sheave forward and aft faces had rotational scoring around the entire circumference. The clutch centering strut had rotational scoring running in the direction of rotation of the upper sheave.



**Figure 7:** View of the first impact area and a tree that the helicopter clipped with the main rotor (yellow circle).



**Figure 8:** The first point of impact, the main wreckage and the stabiliser that separated during the accident sequence.

1.12.2 The tail rotor drive shaft separated from the tail rotor and the gearbox was found still attached to it. None of the flex plates on the tail rotor drive shaft failed. The tail rotor blades showed signs of rotation. The pitch control bell crank was found broken off. The flight controls had several disconnects between the cyclic, collective pitch control levers and swashplate. All fractures exhibited signatures consistent with overload. The tail rotor flight controls had several disconnects from the pedals and tail rotor, and all separations exhibited overload signatures.



**Figures 9 and 10:** The separated tail rotor drive shaft (left picture); and the broken pitch control bell crank (right picture).

1.12.3 The cockpit cabin area was crushed. Examination of the cockpit instrumentation could not establish their pre-impact indications. The instrument panel illumination, warning and indication light bulbs showed that at impact, the illumination lighting was on, which was consistent with a flight conducted at nighttime; this also indicated that the electrical system was functioning. The Perspex windshield was found shattered; the rear doors and the left-side front door had ejected, leaving only the pilot's door still attached to its frame. Fragmented sections of Plexiglass were spotted around the accident area. Both bladder fuel tanks contained sufficient Avgas 100LL. The doors that ejected during the accident sequence were found at the accident site; each door handle was in a closed and locked position, and with the latch pin protruding. The position of the doors was consistent with them being in a closed position. The pilot was still harnessed to his seat (right side). The cyclic pitch control lever was examined, and no anomalies were noted. The hydraulic switch was in the ON position (see Figure 11). The pilot (right side) throttle twist grip was in the ON position and fully open. The collective pitch control lever was near the full UP position and the engine governor was in the ON (UP) position (see Figure 12). The friction locks for the cyclic and collective pitch control levers were ON. The circuit breakers (CB) on the cabin floor below the left front seat were depressed.



**Figure 11:** The cyclic pitch control lever with the hydraulic switch in the ON position.



**Figure 12:** The collective pitch control lever was near the full UP position, and the engine governor was in the ON (UP) position (yellow arrow).

### 1.13 Medical and Pathological Information

1.13.1 To be discussed in the final report.

### 1.14 Fire

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

## **1.15 Survival Aspects**

1.15.1 The accident was considered not survivable due to the impact forces. The impact compromised the structural integrity of the cockpit cabin area of the helicopter, which resulted in a fatal injury.

## **1.16 Tests and Research**

1.16.1 To be discussed in the final report.

## **1.17 Organisational and Management Information**

1.17.1 This was a commercial flight conducted under the provisions of Part 137 of the CAR 2011 as amended.

1.17.2 The operator had the Aircraft Operating Certificate (AOC) that was issued by the Regulator on 31 December 2024 with an expiry date of 30 December 2025.

1.17.3 The operator had the Operating Specifications Certificate that was issued by the Regulator on 31 October 2024. The helicopter (ZS-HFH) was listed on the certificate.

## **1.18 Additional Information**

1.18.1 None.

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

1.19.1 None.

## **2 FINDINGS**

### **2.1 General**

From the available evidence, the following preliminary findings were made with respect to this accident. These shall not be read as apportioning blame or liability to any organisation or individual.

To serve the objective of this investigation, the following sections are included in the conclusions heading:

- **Findings** — are statements of all significant conditions, events, or circumstances in this accident. The findings are significant steps in this accident sequence, but they are not always causal or indicate deficiencies.

## 2.2 Findings

### Personnel

- 2.2.1 The pilot had a Commercial Pilot Licence (CPL) that was initially issued by the Regulator (SACAA) on 29 November 2019. The CPL was reissued on 28 October 2024 with an expiry date of 30 November 2025.
- 2.2.2 The pilot had a Class 1 medical certificate that was issued on 9 October 2024 with an expiry date of 31 October 2025. The pilot had no restrictions on his licence. The helicopter type was endorsed on his licence.
- 2.2.3 The pilot accumulated a total of 2 086.8 flying hours of which 1 512.4 hours were on the helicopter type. The pilot had a night rating endorsement, and his last proficiency check was performed under the operator on 11 June 2025 during which about 2.2 hours of frost-protection flight was conducted. The pilot was found competent and the pilot's Proficiency Check Certificate was issued on 11 June 2025 with an expiry date of 10 December 2025.

### Aircraft

- 2.2.4 The last 100-hour mandatory periodic inspection (MPI) of the helicopter was conducted at 3 704.7 hours. The Certificate of Release to Service (CRS) was issued on 18 December 2024 at 3 704.7 airframe hours with an expiry date of 17 December 2025 or at 3 804.7 airframe hours, whichever comes first.
- 2.2.5 The AMO which performed the last inspection of the helicopter had an AMO Certificate that was issued on 19 November 2024 with an expiry date of 30 November 2025.
- 2.2.6 The helicopter had a valid Certificate of Airworthiness (C of A) that was issued by the Regulator on 14 September 2014 with an expiry date of 30 September 2025.
- 2.2.7 The Certificate of Registration (C of R) was issued to the present owner on 19 November 2018.
- 2.2.8 Examination of the helicopter maintenance records at the operator's facility indicated that all applicable Service Letters (SL), Airworthiness Directives (AD), Service Bulletins (SB), Technical Service Instructions (TSI) and Supplementary Inspection Documents (SID) were complied with during maintenance activities.

2.2.9 The operator had an Aircraft Operating Certificate (AOC) that was issued by the Regulator on 31 December 2024 with an expiry date of 30 December 2025.

2.2.10 The operator had an Operating Specifications Certificate that was issued by the Regulator on 31 October 2024. The accident helicopter (ZS-HFH) was listed on the certificate.

### **3 ON-GOING INVESTIGATION**

3.1 The AIID investigation is on-going, and the investigators will investigate other aspects of this occurrence which may or may not have safety implications.

### **4 SAFETY RECOMMENDATIONS**

#### **4.1 General**

The safety recommendations listed in this report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this report. The AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

#### **4.2 Safety Recommendation**

4.2.1 None.

### **5 APPENDICES**

5.1 None.

**This report is issued by:**

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