

PRELIMINARY ACCIDENT REPORT

Accident and Incident Investigations Division

Accident
- Preliminary Report -
AIID Ref No: CA18/2/3/10673



Figure 1: The file picture of the ZS-HFR helicopter. (Source: Aviationmedia.com)

Description:

On Thursday morning, 23 July 2026, a pilot on-board a Bell B206 JetRanger II helicopter with registration ZS-HFR departed from Upington Agricultural Department in Northern Cape province to administer an agricultural Vectobac blackfly larvae pesticide over the Orange River, starting from Blouputs (near Upington) to Klein Pella (closed to Namibia). The helicopter took off at 0545Z and, later, landed at Blouputs, west of Upington, to uplift 280 litres (L) of the pesticide. Thereafter, it lifted off again at approximately 0600Z to commence the agricultural application of the pesticide over the Orange River. About 20 minutes later, farm workers reported seeing the helicopter flying towards their direction. They then heard a loud sound coming from the helicopter and, thereafter, saw smoke as the helicopter vibrated violently. It flew over the river towards the land and crashed shortly afterwards in Karsten Boerdery orchard.

The pilot was seriously injured and was airlifted to a hospital. The helicopter was destroyed during the accident sequence.

Occurrence Details

Reference Number	: CA18/2/3/10673
Occurrence Category	: Category 1 (Accident)
Type of Operation	: Agriculture (Part 137)
Name of Operator	: Game Work Helicopters CC
Aircraft Registration	: ZS-HFR
Aircraft Make and Model	: Bell B206
Nationality	: South African
Place	: Karsten Boerdery, 65nm west of Upington CBD
Date and Time	: 23 July 2026 at 0623Z
Injuries	: Serious injuries
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 Bell B206 JetRanger helicopter at Karsten Boerdery in Northern Cape province on 23 July 2026 at 0623Z. 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.

The AIID has appointed an investigator-in-charge and a co-investigator to conduct a full investigation. The investigators were dispatched to the accident site. A notification was sent to the State of Manufacturer (Canada) in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. The State of Manufacturer appointed a non-travelling accredited representative and advisor. The AIID will lead the investigation and issue the final report of this accident in accordance with the CAR 2011 Part 12 and the ICAO Annex 13.

The information contained in this preliminary report is derived from the information gathered during the on-going investigation. Later, an interim or final report may contain altered information in case new evidence is found during the on-going investigation that requires changes to the information depicted in this preliminary report.

The AIID reports are made available to the public at:

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

Notes:

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

Accident — this investigated accident

Helicopter — the Bell B206 JetRanger 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 various 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.*

Disclaimer

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AGL	Above Ground Level
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
ARCC	Aeronautical Rescue Coordination Centre
CBD	Central Business District
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
FAA	Federal Aviation Administration
FDR	Flight Data Recorder
FAUP	Upington International Airport
ft	Feet
GPS	Global Positioning System
hPa	Hectopascal
HV	High Velocity
kt	Knots
L	Litres
m	Metres
METAR	Meteorological Aerodrome Report
MPI	Mandatory Periodic Inspection
nm	Nautical Miles
NOSIG	No Significant Change
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
TBO	Time Between Overhaul
QNH	Altitude Above Mean Sea Level
VMC	Visual Meteorological Conditions
QNH	Altitude Above Mean Sea Level
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

- 1.1.1. On Thursday morning, 23 July 2026, a pilot on-board a Bell B206 JetRanger II helicopter with registration ZS-HFR departed on an agricultural application flight from Upington Agricultural Department in Northern Cape province with the intention to land back at the same take-off site. The flight was conducted under visual meteorological conditions (VMC) and under the provisions of Part 137 of the Civil Aviation Regulations (CAR) 2011, as amended.
- 1.1.2. The helicopter lifted off at 0545Z with 100 litres (L) of fuel (Aviation Gasoline 100 Low Lead) in the tanks and landed at Blouputs to uplift 280L of Vectobac blackfly larvae pesticide to be sprayed over the Orange River (*the active chemical and biological agent used to target blackfly larvae in river treatment programs*).
- 1.1.3. At approximately 0600Z, the pilot took off in a north-westerly direction to apply the pesticide over the Orange River, starting from the Blouputs (near Upington) to Klein Pella (closed to Namibia). He applied one rapid (*which refers to a fast, rough part of a river where the water rushes swiftly over rocks*) east of Blouputs. Thereafter, the helicopter climbed to continue its flight to the section of the Orange River that is near Raap-en-Skraap Farm. The pilot stated that when the helicopter was approximately 350 feet (ft) above ground level (AGL) and climbing, he heard a loud bang which was followed by violent vibrations and grinding. He then heard the turbine winding (spooling) down and he immediately initiated an autorotation. The helicopter crashed in Karsten Boerdery orchard near the Orange River.
- 1.1.4. One of the eyewitnesses stated that he spotted the helicopter flying over the river during which he heard a loud sound; it then shook violently as the smoke emanated from it. The helicopter flew over the river towards the land and crashed in a nose-down attitude.
- 1.1.5. The pilot was seriously injured during the accident sequence; he was airlifted to a hospital. The helicopter was destroyed.
- 1.1.6. The accident occurred at Karsten Boerdery, west of Upington, at Global Positioning System (GPS) co-ordinates determined to be 28°27'22.0"S 020°03'03.3"E, at an elevation of 1 441ft.



Figure 2: The accident site. The yellow arrow indicates the direction of flight. (Source Google Earth)

1.2. Injuries to Persons

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

Note: Other means people on the ground.

1.2.1. The pilot was seriously injured and was airlifted to the hospital.

1.3. Damage to Helicopter

1.3.1. The helicopter was destroyed.



Figure 3: The wreckage of ZS-HFR.

1.4. Other Damage

1.4.1. The grapevines in the orchard were damaged.

1.5. Personnel Information

Nationality	South African	Gender	Male	Age	63
Licence Type	Commercial Pilot Licence (CPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Cull rating, Agricultural rating				
Medical Expiry Date	31 July 2026				
Restrictions	Corrective near vision lenses				
Previous Accidents	None				

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

Flying Experience:

Total Hours	18 302
Total Past 24 Hours	Unknown
Total Past 7 Days	Unknown
Total Past 90 Days	7.5
Total on Type Past 90 Days	7.5
Total on Type	2 346.9

1.5.1. The pilot had a Commercial Pilot Licence (CPL) that was initially issued on 9 February 1995. The latest renewed CPL was issued on 24 February 2026 with an expiry date of 28 February 2027.

1.5.2. The pilot had a Class 1 aviation medical certificate that was issued on 19 January 2026 with an expiry date of 31 July 2026 with a restriction to wear corrective lenses for defective near vision.

1.6. Helicopter Information

1.6.1. Description (Source: Globalair.com)

The Bell Helicopter Textron's B206 JetRanger II is a popular, single-engine, five-seat light utility helicopter introduced in 1971. It features a sleek fuselage, a two-bladed main rotor, skid landing gear, and an Allison 250-C20 turboshaft engine known for reliable performance, a 116-knot cruise speed, and wide versatility in civilian and military roles.

Airframe:

Manufacturer/Model	Bell Helicopter Textron, B206 JetRanger II	
Serial Number	2206	
Year of Manufacture	1971	
Total Airframe Hours (At Time of Accident)	12 604.0	
Last Inspection (Date & Hours)	14 December 2025	12 561.1
Hours Since Last Inspection	42.9	
CRS Issue Date	14 December 2025	
C of A (Issue Date & Expiry Date)	20 September 1997	30 September 2026
C of R (Issue Date) (Present Owner)	17 May 2019	
Type of Fuel Used	AVGAS 100LL	
Operating Category	Agriculture (Part 137)	
Previous Accidents	None	

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

Engine:

Manufacturer/Model	Rolls-Royce / 250-C20B
Serial Number	CAE-823425
Part Number	250-C20B
Hours Since New	12749.1

Hours Since Overhaul	MODULAR
	1. Compressor: Hours Since New: 12 604.0 Hours Since Overhaul: 3 033.6
	2. Accessory Gearbox: On-condition
	3. Turbine: Hours Since New: 9 741.8 Hours Since Overhaul: 744.3

Main Rotor Gearbox:

Part Number	206-040-002-025
Serial Number	BKW-11307
Hours Since New	12 604.0
Hours Since Overhaul	2 741.7

Main Rotor Blades:

Number of blades	1	2
Part Number	206-010-200-033	206-010-200-033
Serial Number/s	T20744	T20759
Hours Since New	4 996.7	4 996.7
Hours Since Overhaul	N/A	N/A

Tail Rotor Gearbox:

Part Number	206-040-400-013
Serial Number	ALO-12664
Hours Since New	15 424.9
Hours Since Overhaul	1 193.1

Tail Rotor Blades:

Number of blades	1	2
Part Number	2062200-301	2062200-301
Serial Number/s	D827	D829
Hours Since New	1 193.1	1 193.1
Hours Since Overhaul	N/A	N/A

1.6.2. The last mandatory periodic inspection (MPI) of the helicopter was conducted and certified on 14 December 2025 at 12 561.1 total airframe hours after which a Certificate of Release to Service (CRS) was issued with an expiry date of 13 December 2026 or at 12 661.1 hours, whichever comes first.

- 1.6.3. The helicopter had a Certificate of Airworthiness (C of A) that was initially issued by the Regulator (SACAA) on 20 September 1997. The latest C of A had an expiry date of 30 September 2026.
- 1.6.4. The helicopter Certificate of Registration (C of R) was issued to the present owner on 17 May 2019.
- 1.6.5. The helicopter was dispatched with 100L of Aviation Gasoline and was flown to Blouputs where 280L of Vectobac blackfly larvae pesticide was uplifted.

1.7. **Meteorological Information**

- 1.7.1. The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS), recorded at Upington International Airport (FAUP) on 23 July 2026 at 0600Z. The accident site is 116.7 nautical miles (nm) from FAUP.

METAR FAUP 230600Z 26003KT CAVOK 00/M00 Q1025 NOSIG=
SPECI FAUP 230610Z 26001KT CAVOK 02/01 Q1025 NOSIG=

Wind Direction	260°	Wind Speed	03 kts	Visibility	9999m
Temperature	2°C	Cloud Cover	CAVOK	Cloud Base	ft
Dew Point	1°C	QNH	1025hPa		

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 at Karsten Boerdery's grape vineyard in Blouputs, approximately 116.7nm west of FAUP.

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 time of accident was 0623Z on a grape vineyard at Karsten Boerdery in the Northern Cape. The helicopter impacted the ground in a nose-down attitude at an angle of approximately 45°. The distribution of the wreckage was consistent with a high-energy impact followed by structural separation of several components.



Figure 4: Initial impact on the ground. The red arrow indicates the direction of the helicopter after the impact.



Figure 5: The damage pattern indicates that the helicopter impacted the ground in a nose-down attitude.

1.12.2. One of the main rotor blades struck the ground first and broke off whilst the other main rotor blade remained intact; as a result, the helicopter's nose impacted the vines. Both skids separated from the helicopter and the lower compartment containing the pesticide ruptured, spilling it (pesticide) to the ground.



Figure 6: The topside of the helicopter after it had rested.



Figure 7: The bottom side of the helicopter; the red arrow points to the tail boom.

1.12.3. The tail boom was severed from the main wreckage. The remaining aft section showed signs of secondary damage near the tailfin (vertical stabiliser). The tail rotor assembly was found approximately 15 metres (m) from the main wreckage. During the impact sequence, the doors separated from the main wreckage and the windshield shattered. The helicopter came to rest on its right side.



Figure 8: The tail rotor assembly found 15m from the main wreckage (the red arrows indicate the breakage points).



Figure 9: The lower compartment of the helicopter which housed the pesticide.

1.13. Medical and Pathological Information

1.13.1. None.

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 survivable as the cockpit had remained intact during the accident.

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 an agricultural chemical application flight operated under the provisions of Part 137 of the CAR 2011, as amended.

1.17.2. The operator had an Air Operating Certificate (AOC) that was issued by the Regulator on 16 November 2025 with an expiry date of 31 December 2026. The ZS-HFR helicopter was listed in the operator's Operations Specifications.

1.17.3. The aircraft maintenance organisation (AMO) which conducted the last maintenance had an AMO Certificate that was issued by the Regulator on 20 March 2026 with an expiry date of 31 March 2027.

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**

2.2.1. The pilot was qualified and medically fit to conduct the flight. He had a valid Commercial Pilot Licence (CPL) with an expiry date of 28 February 2027 and a Class 1 aviation medical certificate with an expiry date of 31 July 2026.

- 2.2.2. The aircraft's maintenance record was up to date. After the recent mandatory periodic inspection (MPI), a Certificate of Release to Service (CRS) was issued with an expiry date of 13 December 2026 or at 12 661.1 total hours, whichever occurs first.
- 2.2.3. The helicopter was registered under the current owner on 17 May 2019. It had a valid Certificate of Airworthiness (C of A) with an expiry date of 30 September 2026.
- 2.2.4. The operator had a valid Air Operating Certificate (AOC) that was issued by the Regulator. The helicopter was listed in the operator's Operations Specifications.
- 2.2.5. The aircraft maintenance organisation (AMO) which maintained the helicopter had a valid AMO Certificate that was issued by the Regulator.
- 2.2.6. The helicopter was dispatched with 100 litres of Aviation Gasoline in the tank; it was flown to Blouputs to uplift 280 litres of Vectobac blackfly larvae pesticide.
- 2.2.7. The pilot stated that after he heard a loud bang and the violent vibrations, he elected to perform an autorotation; however, it was unsuccessful. The helicopter impacted the ground in a nose-down attitude.

3. ON-GOING INVESTIGATION

- 3.1. The AIID investigation is on-going, and the investigators will investigate other aspects of this accident 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/s

- 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**