

**LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL**

<b>Reference Number</b>	CA18/3/2/1420						
<b>Classification</b>	Serious Incident	<b>Date</b>	8 July 2023	<b>Time</b>	0745Z		
<b>Type of Operation</b>	Private (Part 91)						
<b>Location</b>							
<b>Place of Departure</b>	Vaalkrans Game Farm near Makhanda, Eastern Cape Province		<b>Place of Intended Landing</b>	Vaalkrans Game Farm near Makhanda, Eastern Cape Province			
<b>Place of Occurrence</b>	Vaalkrans Game Farm near Makhanda, Eastern Cape Province						
<b>GPS Co-ordinates</b>	<b>Latitude</b>	33°13'55.06" S	<b>Longitude</b>	026°16'28.13" E	<b>Elevation</b>	1 895 ft	
<b>Aircraft Information</b>							
<b>Registration</b>	ZS-HEW						
<b>Make; Model; S/N</b>	Hughes Helicopters; 269C (Serial Number: 500919)						
<b>Damage to Aircraft</b>	Minor			<b>Total Airframe Hours</b>	1 197.6		
<b>Pilot-in-command</b>							
<b>Licence Type</b>	Private Pilot Licence		<b>Gender</b>	Male		<b>Age</b>	26
<b>Licence Valid</b>	Yes	<b>Total Hours</b>	441.3		<b>Total Hours on Type</b>	121.5	
<b>Total Hours 90 Days</b>	68.7		<b>Total Flying on Type Past 90 Days</b>			57.9	
<b>People On-board</b>	1 + 1	<b>Injuries</b>	0	<b>Fatalities</b>	0	<b>Other (on ground)</b>	0
<b>What Happened</b>							
<p>On Saturday morning, 8 July 2023 at 0730Z, a pilot and a passenger on-board a Hughes 269C helicopter with registration ZS-HEW took off on a surveillance flight at Vaalkrans Game Farm near Makhanda (previously Grahamstown) in the Eastern Cape province. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The pilot was seated on the left seat and the passenger on the right seat. The pilot's door was removed for this flight. The pilot reported that they took off from the helipad on the farm and climbed to approximately 300 to 400 feet (ft) above ground level (AGL) at an indicated airspeed of about 50 knots (kts). Fine weather conditions prevailed at the time of the flight with good visibility.</p> <p>The pilot commenced with a right turn, and (during the turn) the helicopter descended but maintained the speed. The pilot stated that he was aware of the power lines that spanned across a shallow valley on the farm, which were at a height of approximately 100ft AGL. He stated that his impression was that the helicopter was well above the power lines, however, the helicopter impacted the power lines head-on whilst the helicopter was straight and level. The right windshield cracked and the transparent panel above his head cracked and broke. The pilot maintained the main rotor revolutions</p>							

per minute (RPM) in the green arc and landed the helicopter approximately 150m from the place of impact with the power lines. During landing, the main rotor blades struck a small shrub (Figure 1), however, no damage was visible to the main rotor blades apart from the leading-edge blade tape that was worn out. The windshield cracked at two places, and one of the flight controls connecting rods (located next to the main rotor drive shaft) that connects to the non-rotating swash plate bent (see Figure 6). After landing, the pilot secured the helicopter and switched off the master switch. Both occupants disembarked from the helicopter uninjured.

The serious incident occurred during day light at Global Positioning System (GPS) co-ordinates determined to be 33°13'55.06" South 026°16'28.13" East, at an elevation of 1 895ft.



**Figure 1:** The helicopter after landing. (Source: Pilot)



**Figure 2:** The wire strike markings on the windshield. (Source: Pilot)



**Figure 3:** A pylon with all three power lines severed during impact. (Source: Pilot)



**Figure 4:** One of the severed cables. (Source: Pilot)



**Figure 5:** Cables that were severed. (Source: Pilot)



**Figure 6:** One of the control rods that was bent after impact with the power lines. (Source: Pilot)

Meteorological Information

The weather information in the table below was obtained from the pilot questionnaire (form CA 12-03).

Wind Direction	270°	Wind Speed	8 kt	Visibility	9999 m
Temperature	22°C	Cloud Cover	Nil	Cloud Base	CAVOK
Dew Point	10°C	QNH	1019hPa		

## Findings

### 1. Personnel Information

- 1.1 The pilot had a Private Pilot Licence (PPL). His licence was initially issued on 4 March 2020. The last renewal of the pilot's licence was on 6 December 2021 with an expiry date of 31 December 2023. The pilot had flown a total of 441.3 hours of which 121.5 hours were on the helicopter type.
- 1.2 The pilot had a Class 2 aviation medical certificate that was issued on 23 October 2018 with an expiry date of 31 October 2023.
- 1.3 The pilot was properly licensed and medically fit to conduct the flight in accordance with the existing regulations. The helicopter type was endorsed on his licence.
- 1.4 The pilot was not wearing a helmet during the flight.

### 2. Aircraft Information

- 2.1 The last maintenance inspection on the helicopter was conducted by an aircraft maintenance organisation (AMO) prior to the accident flight. The maintenance was certified on 29 June 2023 at 1 143.6 airframe hours. Since the inspection, a further 54.0 hours were flown on the helicopter.
- 2.2 The helicopter had a valid Certificate of Airworthiness (C of A) that was issued on 1 August 2018 with an expiry date of 31 August 2023. The helicopter was airworthy when it dispatched for the flight.
- 2.3 The helicopter's Certificate of Registration (C of R) was issued on 8 March 2017.
- 2.4 The helicopter was issued a Certificate of Release to Service (CRS) on 29 June 2023 with an expiry date of 28 June 2024 or at 1 230.4 airframe hours, whichever occurs first.
- 2.5 The helicopter was involved in a serious incident on 23 September 2021 (AIID Reference number CA18/3/2/1371) on which it experienced a severe tail rotor vibration in-flight; the pilot executed a precautionary landing on an open field.

### 3. Meteorological Information

- 3.1 The weather was fine at the time of the flight, and it did not contribute to this accident.

<b>Probable Cause</b>
The pilot did not keep a proper lookout during the low-level flight, which resulted in the helicopter impacting the power lines during a surveillance flight on a game farm.
<b>Contributing Factor(s)</b>
Failure to maintain safe height above obstacles.
<b>Safety Action(s)</b>
None.
<b>Safety Messages</b>
<p>1. The helicopter pilots should wear helmets and proper safety gear (fire-resistant flight suits) during operation as well as gloves to prevent injuries. This is especially relevant during low-level operations (i.e., game capture, crop-spraying and similar types of operations).</p> <p>2. The helicopter operators should mandate their pilots to adorn helmets and proper safety gear (fire-resistant flight suits) during operation as well as gloves to prevent injuries. This is especially relevant during low-level operations (i.e., game capture, crop-spraying and similar types of operations).</p> <p>3. Helicopter pilots are reminded to always conduct a proper flight planning and be alert of the potential hazards identified during flight planning.</p>
<b>About this Report</b>
<p><i>The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited 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 limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries 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 occurrence.</i></p> <p><i>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.</i></p>
<b>Purpose</b>
<i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, 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.</i>
<b>Disclaimer</b>
<i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i>

**This report is issued by:  
Accident and Incident Investigations Division  
South African Civil Aviation Authority  
Republic of South Africa**