AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

			Reference:	**CA18/2/3/10614**	
Helicopter Registration	**ZS-DLF**	**Date of Accident**	10 November 2025	**Time of Accident**	0545Z
Type of Helicopter	Robinson R22 Beta II		**Type of Operation**	Agricultural (Part 137)	
Pilot-in-command Licence Type	Commercial Pilot Licence (CPL) Helicopter	**Age**	43	**Licence Valid**	Yes
Pilot-in-command Flying Experience	**Total Flying Hours**	473.3	**Hours on Type**	473.3	
Last Point of Departure	Patensie Farm Airstrip, Eastern Cape Province				
Next Point of Intended Landing	Patensie Farm Airstrip, Eastern Cape Province				
Damage to Helicopter	Destroyed				

Location of the accident site with reference to easily defined geographical points (GPS readings if possible)

Roodegrond Citrus Farm near Patensie at Global Positioning System (GPS) co-ordinates determined to be 33°41'1" South 024°44'19" East, at an elevation of 192 feet (ft)

Meteorological Information	Wind velocity: 020° at 3KT; Temperature: 26°C; Dew Point: 18°C; Visibility: ≥10000m; Cloud ceiling: FEW020; QNH: 1021 hPa						
Number of People On-board	1+0	**Number of People Injured**	0	**Number of People Killed**	1	**Other (On Ground)**	0

Synopsis

On Monday morning, 10 November 2025, a pilot on-board a Robinson R22 Beta II helicopter with registration ZS-DLF took off on a pest-control (crop-spraying) operation from Patensie Farm Airstrip, Eastern Cape province, with the intention to return to the same airstrip. The flight was conducted under visual meteorological conditions (VMC) in accordance with Part 137 of the Civil Aviation Regulations (CAR) 2011, as amended.

After a pre-flight inspection during which no anomalies were reported, the helicopter proceeded to a citrus orchard at Roodegrond Citrus Farm, approximately 2.9 nautical miles (nm) from the departure point. Whilst conducting low-level agricultural operations in a south-easterly direction and facing the morning sun, the helicopter's main rotor mast struck a 1 000-Volt overhead powerline belonging to the citrus farm that spanned across the flight path. The helicopter subsequently entered an uncontrolled descent and crashed between the rows of the citrus trees. The helicopter was destroyed during the accident sequence. Emergency medical services were notified of the accident, and the pilot was declared deceased at the scene.

Probable Cause/s and/or Contributory Factors

During a crop-spraying operation, the helicopter impacted the overhead powerlines which resulted in loss of control and crash to the ground.

Contributory Factors

1. Reduced visual conspicuity of powerlines.
2. Inadequate aerial inspection.

SRP Date	9 June 2026	Publication Date	10 June 2026

Occurrence Details

Reference Number	**:** CA18/2/3/10614
Occurrence Category	**:** Accident (Category 2)
Type of Operation	**:** Agricultural Operations (Part 137)
Name of Operator	**:** Rotorworx Aviation
Helicopter Registration	**:** ZS-DLF
Helicopter Make and Model	**:** Robinson R22 Beta II
Nationality	**:** South African
Place	**:** Roodegrond Citrus Farm near Patensie, Eastern Cape Province
Date and Time	**:** 10 November 2025 at 0545Z
Injuries	**:** One fatal injury
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 on 10 November 2025 at 0545Z. 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. Notifications were sent to the State of Registry, Operator, and Design and Manufacturer in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. The States did not appoint an accredited representative and/or advisor. Investigators were dispatched to the site for this accident.

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Accident — this investigated accident
   Helicopter — the Robinson R22 Beta 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.*

Disclaimer

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
A/C	Aircraft
ACCID	Accident
AGL	Above Ground Level
AIID	Accident and Incident Investigations Division
AOC	Air Operating Certificate
AMO	Aircraft Maintenance Organisation
CAA	Civil Aviation Authority
CAR	Civil Aviation Regulations
CAVOK	Ceiling and Visibility OK
CVR	Cockpit Voice Recorder
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CPL	Commercial Pilot Licence
CRS	Certificate of Release to Service
FAPE	Port Elizabeth Airport
FDR	Flight Data Recorder
ft	Feet
GPS	Global Positioning System
hp	Horsepower
hPa	Hectopascal
IIC	Investigator-in-Charge
kt	Knots
Lb	Pounds
L	Litres
m	Metres
METAR	Meteorological Aerodrome Report
MHz	Megahertz
MPI	Mandatory Periodic Inspection
nm	Nautical Miles
PIC	Pilot-in-Command
POH	Pilot's Operating Handbook
QNH	Barometric Pressure Adjusted to Mean Sea Level
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
SOP	Standard Operating Procedures
TBO	Time Between Overhaul
UTC	Co-ordinated Universal Time
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

1.1.1. On Monday morning, 10 November 2025, a pilot on-board a Robinson R22 Beta II helicopter with registration ZS-DLF took off on a pest-control flight from Patensie Farm Airstrip, Eastern Cape province, to Roodegrond Citrus Farm in the same province with the intention to return to the take-off airstrip. 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. A different pilot conducted the first flight of the day in which no technical defects or abnormalities were reported during the approximately 1.2-hour sortie. After this flight, the aircraft returned to Patensie Farm Airstrip to be refuelled and prepared for the next operation which involved the loading of biological pest-control moths for aerial distribution. *The accident pilot was present throughout the post-flight and preparation activities and actively participated in the refuelling process, payload loading, and pre-flight inspection*. The pre-flight briefing included verbal identification and discussion of operational danger zones by the supervising pilot prior to departure.

1.1.3. The accident pilot departed from Patensie Farm Airstrip and routed north-westerly towards Roodegrond Citrus Farm to commence with the aerial application in the treatment area. The pilot conducted several spray runs in a north-westerly direction and reciprocal tracks (opposite direction [south-easterly]) to ensure full coverage of the citrus rows. At approximately 0545Z whilst performing a spray run on a south-easterly heading and flying facing the rising morning sun, the helicopter's main rotor mast impacted a 1 000-Volt overhead electrical powerline which was approximately 7.2 metres (m) in height that spanned across the flight path, and the pilot lost control of the helicopter. The main rotor system severed the tail boom, and both main rotor blades separated from the rotor hub.

1.1.4. After the in-flight breakup, the helicopter descended uncontrolled and crashed on the ground with the left skid first; it subsequently rolled onto its right side and came to rest between the rows of the citrus trees, approximately 37m from the initial point of powerline strike. The pilot was fatally injured; she was confirmed deceased at the scene by the emergency personnel who were alerted of the accident. The helicopter was destroyed during the accident sequence.

1.1.5. The accident occurred at Roodegrond Citrus Farm near Patensie at Global Positioning System (GPS) co-ordinates determined to be 33°41'1" South 024°44'19" East, at an elevation of 192 feet (ft).

Figure 1: An aerial view of the approximate accident site. (Source: Google Earth)

1.2. Injuries to Persons

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

Note: Other means people on the ground.

1.2.1. The pilot was fatally injured during the accident sequence.

1.3. Damage to Helicopter

1.3.1. The helicopter was destroyed during the accident sequence.

Figure 2: An elevated view of the helicopter at the accident site.

1.4. Other Damage

1.4.1. The privately owned 1 000-Volt overhead electrical powerline that was suspended approximately 7.2m above ground level sustained damage during the accident. The powerline supplied electric power to the water pumps which were installed at Patensie Citrus Farm.

Figures 3 and 4: The damaged powerline after the accident.

1.5. Personnel Information

Nationality	South African	Gender	Female	Age	43
Licence Type	Commercial Pilot Licence (CPL) Helicopter				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instructor Grade 3, Night, Agricultural ratings				
Medical Class & Expiry Date	30 September 2026				
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	473.3
Total Past 24 Hours	0.9
Total Past 7 Days	6.6
Total Past 90 Days	35
Total on Type Past 90 Days	35
Total on Type	473.3

1.5.1. The pilot had a Commercial Pilot Licence (CPL) Helicopter that was initially issued on 8 October 2024 in accordance with (IAW) Part 61 of the CAR 2011. The licence was revalidated on 17 October 2025 with an expiry date of 16 October 2026.

1.5.2. The pilot had a Class 1 aviation medical certificate that was issued on 3 September 2025 with an expiry date of 30 September 2026 with no medical restrictions.

1.5.3. The pilot had verbally identified and discussed the danger zones in the area of application.

1.6. Helicopter Information (Source: https://www.robinsonheli.com/helicopters/r22-beta-ii)

1.6.1. *The Robinson R22 Beta II is a two-seat, two blades main rotor-equipped helicopter with a piston engine. The R22 Beta II incorporates a Lycoming O-360 four-cylinder, carburettor-equipped engine fuelled with 100LL grade aviation gasoline. This 145 horsepower (hp) engine is derated to 131hp for five minutes at take-off and 124hp for continuous operation. The engine, a lightweight steel-tube airframe and aerodynamic shape give the R22 a cruise speed of up to 90 knots (kts) and an average fuel consumption of only 7-10 gallons per hour. The R22 seats two adults and occupants have panoramic views due to the R22's large windows. Acoustical foam lowers cabin noise. A heavy-duty muffler and low tail-rotor tip speed lessen flyover noise.*

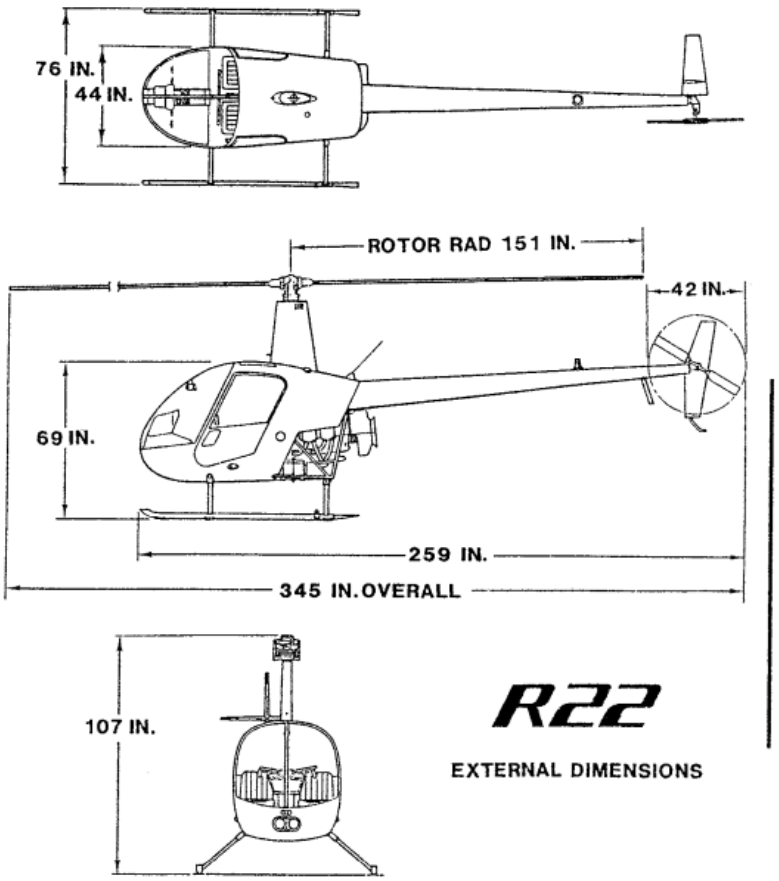

Diagram 1: The Robinson R22 exterior dimensions. (Source: Pilot's Operating Handbook)

Airframe:

Manufacturer/Model	Robinson R22 Beta II	
Serial Number	4149	
Year of Manufacture	2007	
Total Airframe Hours (At Time of Accident)	5 387.2	
Last Inspection (Date & Hours)	7 November 2025	5 384.0
Airframe Hours Since Last Inspection	3.2	
CRS Issue Date	29 September 2025	
C of A (Issue Date & Expiry Date)	27 February 2025	28 February 2026
C of R (Issue Date) (Present Owner)	24 June 2019	
Operating Category	Standard Normal Category (Rotorcraft)	
Type of Fuel Used	Avgas 100LL	
Previous Accidents	Hard landing on 21 December 2013 at 3314.0 airframe hours	

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

Engine:

Manufacturer/Model	Lycoming
Serial Number	L-39052-36A
Part Number	O-360-J2A
Hours Since New	5 192.3
Hours Since Overhaul	2 063.5

Main Rotor Gearbox:

Part Number	A006-6
Serial Number	4069
Hours Since New	5 090.2
Hours Since Overhaul	2 890.2

Main Rotor Blades:

Number of blades	1	2
Part Number	A016-4	A016-4
Serial Number/s	8515	8518
Hours Since New	5 090.2	5 090.2
Hours Since Overhaul	2 890.2	2 890.2

Tail Rotor Gearbox:

Part Number	B021-1
Serial Number	0756
Hours Since New	5 090.2
Hours Since Overhaul	2 890.2

Tail Rotor Blades:

Number of blades	1	2
Part Number	A029-2	A029-2
Serial Number/s	4031	4034
Hours Since New	5 090.2	5 090.2
Hours Since Overhaul	2 890.2	2 890.2

1.6.2. The helicopter had a Certificate of Release to Service (CRS) that was issued on 29 September 2025 with an expiry date of 28 September 2026 or at 5 390.4, whichever occurs first.

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 Port Elizabeth Airport (FAPE) on 10 November 2025 at 0600Z. FAPE is located 40 nautical miles (nm) east of the accident site.

FAPE 100600Z 07009KT 9999 FEW008 20/19 Q1014 NOSIG=

Wind Direction	070°	Wind Speed	9 kt	Visibility	10 km
Temperature	20°C	Cloud Cover	FEW	Cloud Base	800 ft
Dew Point	19°C	QNH	1014 hPa		

1.7.2. The weather conditions on the day of the flight did not contribute to this accident.

1.8. Aids to Navigation

1.8.1. The helicopter was equipped with standard navigational equipment as approved by the Regulator (SACAA). 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 Roodegrond Citrus Farm near Patensie in Eastern Cape province. Therefore, the accident did not occur at an aerodrome.

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 helicopter's main rotor mast impacted the powerline whilst flying in a south-easterly direction. The main rotor severed the tail boom, and the two main rotor blades detached from the rotor hub. The helicopter crashed to the ground, left skid first; it came to rest on its right side between rows of citrus trees approximately 37m from the initial point of impact with the electric powerline.

1.12.2. The bladder tanks still contained fuel at the accident site, although the quantity could not be determined. The fuel was clean and free of contaminants. There were no noted pre-impact anomalies; all fractures were consistent with impact forces. All airframe components and controls were accounted for.

1.12.3. The flight control system, including the anti-torque pedals (tail rotor control), collective pitch lever, and cyclic control linked to the main rotor system was inspected for continuity, security and proper mechanical linkage. No evidence of control discontinuity, binding, separation or mechanical failure was identified.

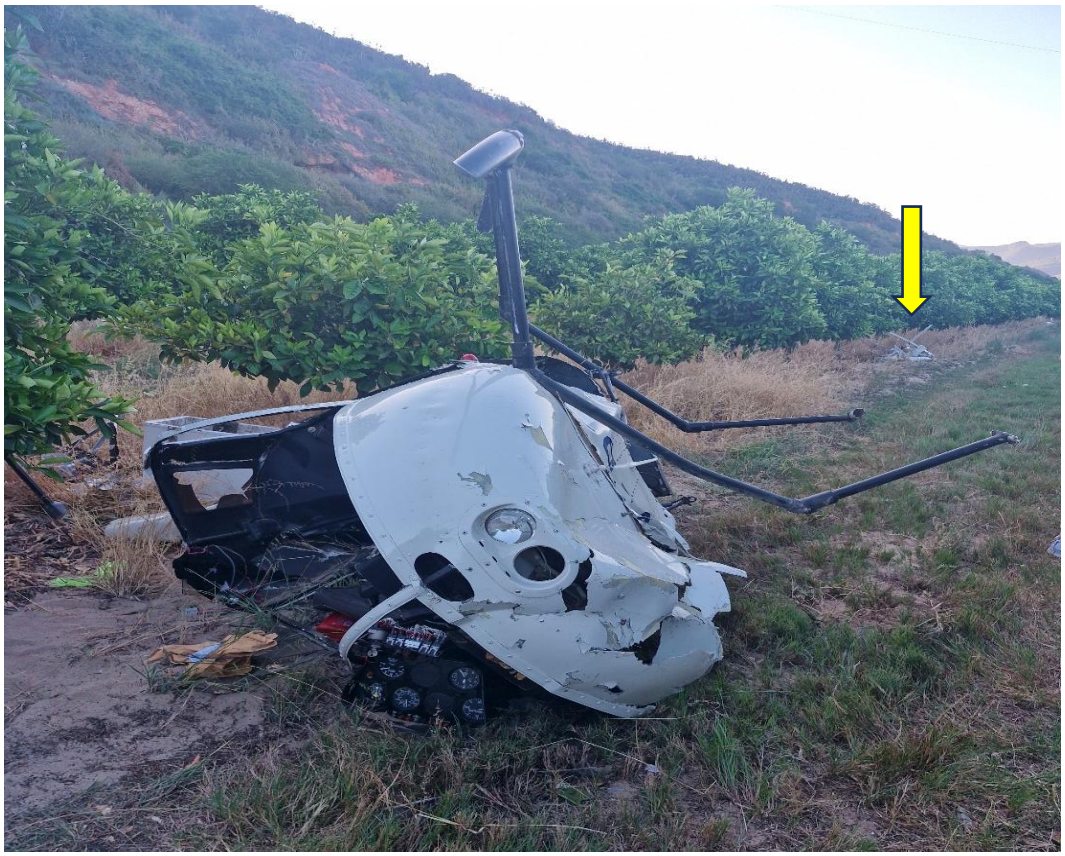

Figure 5: A frontal view of the helicopter with the tail rotor section in the background (yellow arrow).

Figure 6: An elevated view of the accident site; the red arrow points to the main rotor blades.

1.13. Medical and Pathological Information

1.13.1. A post-mortem examination and the toxicology test of the pilot were performed; however, the results were not yet available at the time of release of this report. Should the results have substantive impact which might be considered as new evidence, the AIID will reopen this investigation.

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 considered not survivable due to the high-impact forces at the time of the crash. The impact compromised the structural integrity of the cockpit and the cabin area of the helicopter, which resulted in a fatal injury.

1.16. Tests and Research

1.16.1. None.

1.17. Organisational and Management Information

1.17.1. The helicopter was 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 6 May 2025 with an expiry date of 31 May 2026. The helicopter was listed in the operator's Operations Specifications.

1.17.3. The helicopter was maintained by an approved aircraft maintenance organisation (AMO) with an AMO Certificate that was issued by the Regulator on 2 December 2024 and expiring on 31 December 2025.

1.17.4. The minimum flight hour requirements for pilots conducting agricultural operations within the organisational (operator's) Standard Operating Procedure (SOP) were aligned with the Agricultural Pilot Rating in accordance with the CAR 2011, Part 61, Subpart 25.1 (61.25.1).

1.18. Additional Information

Figure 7: Illustration of mast bumping (this is not the aircraft that was involved in the accident).

1.18.1. Extract from discussions of mast bumping and low-G rotor dynamics in helicopter safety literature and accident investigation findings

(Source: Principles of Helicopter Flight and Understanding reasons [Vertical Mag])

During a powerline impact, mast bumping in a helicopter could precipitate catastrophic in-flight structural failure, commonly resulting in separation of the main rotor system from the mast. Excessive and abrupt rotor flapping forces the teetering hub to contact the mast, which may be followed by secondary strikes to the tail boom or cabin structure. This sequence typically leads to immediate loss of control, in-flight breakup, and a high probability of a fatal outcome.

Contextual Factors According to The Flight Safety Foundation (Source: Independent International Aviation Safety Experts)

- *Teetering Rotor Systems: This phenomenon is specific to helicopters with two-bladed, teetering rotor systems (e.g., Robinson R22/R44/R66, Bell 206).*
- *Low-G Conditions: Striking a wire often triggers violent, abrupt pilot input or sudden turbulence, causing a low-G state where the blades flap excessively, leading to mast contact.*

Effects of Mast Bumping Following Wire Strike (Source: The Flight Safety Foundation)

- *Catastrophic Structural Failure: The primary effect is the separation of the main rotor system from the helicopter, often caused by the rotor hub shearing the mast.*
- *Rotor-Fuselage Collision: The damaged rotor system can strike the fuselage, cabin, or tail boom, causing severe structural damage.*
- *Instant Loss of Control: The destruction of the rotor system leads to an immediate loss of lift and control, causing the aircraft to fall.*
- *Fatal Consequences: In-flight mast bumping, particularly in low-G situations often induced by abrupt manoeuvres to avoid wires, is generally fatal.*

1.18.2. Agricultural Operations (Source: Operations Manual)

1.7 AGRICULTURAL OPERATIONS

(a) **Survey of Field**

(i) Before commencing spraying operations, fly around the entire perimeter at least once to confirm the location of wires, standpipes, surface gradient or other obstacles.

(ii) Determine the direction the field will be flown.

(iii) Check the surrounding area on downwind side for possible drift damage.

(iv) Make a note of houses or areas to avoid during turning.

(b) **Entering of Field**

(i) If practical, make the first run on a flat area of land, crosswind. If not, the first pass must be made into the wind. Two passes will be made before the first downwind turn is required. Avoid making first pass into the sun.

(ii) If obstructions border the field, reduce speed slightly and make a high approach. When the obstruction is near enough, nose down smoothly to an angle which will clear the obstruction and apply power to prevent high-speed stall on round out. Avoid flying just above obstruction height and abruptly pitching over.

(c) The PIC shall have full and final responsibility with respect to the safe operation of the aircraft and full authority to discontinue operating if conditions or procedures endanger the PIC, the aircraft, persons or property.

1.18.3. Robinson R22 Safety Notice 16 - Powerlines are Deadly

Flying into wires, cables, and other objects is by far the number one cause of fatal accidents in helicopters. Pilots must constantly be on the alert for this very real hazard.

- *Watch for the towers; you will not see the wires in time.*
- *Fly directly over the towers when crossing powerlines.*
- *Allow for the smaller, usually invisible, grounding wire(s) which are well above the larger more visible wires.*
- *Constantly scan the higher terrain on either side of your flight path for towers.*
- *Always maintain at least 500 feet AGL except during take-off and landing. By always flying above 500 feet AGL, you can virtually eliminate the primary cause of fatal accidents.*

1.18.4. Robinson R22 Safety Notice 34

Aerial survey and photo flights should only be conducted by well trained, experienced pilots who:

1) Have at least 500 hours pilot-in-command in helicopters and over 100 hours in the model flown;
2) Have extensive training in both low RPM and settling-with-power recovery techniques;
3) Are willing to say no to the observer or photographer and only fly the aircraft at speeds, altitudes, and wind angles that are safe and allow good escape routes.

1.19. Useful or Effective Investigation Techniques

1.19.1. None.

2. ANALYSIS

2.1. General

From the available evidence, the following analysis was made with respect to this accident. This shall not be read as apportioning blame or liability to any organisation or individual.

2.2. Analysis

Pilot

2.2.1. The pilot had a valid Commercial Pilot Licence (CPL) Helicopter that was issued on 8 October 2024. The licence was renewed on 17 October 2025 with an expiry date of 16 October 2026. The pilot had flown a total of 473.3 hours, all of which were on the helicopter type. The pilot

had a Grade 3 flight instructor rating, night rating and agricultural rating. The helicopter was endorsed in the pilot's licence and logbook. The pilot met the regulatory requirements and skills in accordance with the South African Civil Aviation Technical Standards (SA-CATS) 61.25.2 to undertake the flight.

2.2.2. The pilot had a Class 1 medical certificate that was issued on the 3 September 2025 with an expiry date of 30 September 2026. Accordingly, the pilot had a valid medical certificate at the time of the flight; she was medically fit to conduct the flight.

2.2.3. In accordance with the Civil Aviation Regulations (CAR), 2011 Part 61, Subpart 25.1 (61.25.1), a pilot conducting aerial application operations must have acquired not less than 300 hours of total flight time, including at least 10 hours of supervised aerial application experience in helicopters. The pilot had accumulated 473.3 hours of total helicopter flight time, which exceeded the minimum total flight time requirement prescribed by the regulation. Based on the available information, the pilot's overall helicopter flight experience met the regulatory threshold for conducting aerial application operations, as well as the requirements of the (operator's) SOP.

2.2.4. In accordance with Safety Notice 34 for the Robinson R22, aerial survey flights are classified as very high-risk operations and should only be conducted by pilots with a minimum of 500 hours as pilot-in-command (PIC) in helicopters and at least 100 hours on type. However, in this case, the pilot had accumulated 473.3 total helicopter (and type) hours, which did not meet the manufacturer's recommended experience thresholds; thereby, reducing the safety margin for low-level, high-workload operations that require advanced aircraft handling proficiency, heightened situational awareness and well-developed aeronautical decision-making skills.

2.2.5. The pilot had a verbal discussion and had identified the operational danger zones with the previous pilot who flew and identified the danger zones. This was conducted as per the Operations Manual.

Helicopter

2.2.6. A review of the maintenance records indicated that the scheduled maintenance periodic inspection (MPI) was completed in accordance with the manufacturer's approved data and applicable regulatory requirements. The inspection was conducted in compliance with the Robinson R22 Maintenance Manual. The work performed during the MPI included all

inspection tasks specified for the applicable hourly/annual interval including airframe, powerplant, main and tail rotor systems, flight controls, drive system components and associated assemblies. The helicopter was certified as airworthy following completion of the inspection; no evidence was identified to suggest any exclusion of the required inspection task or maintenance action within the scope of the MPI. Based on the available documentation and records that were examined, there was no indication of incomplete maintenance or non-compliance with the prescribed inspection schedule that might have contributed to the occurrence.

2.2.7. Documentation reviewed indicated that the helicopter had a valid Certificate of Airworthiness (C of A) at the time of the occurrence. The certificate had been duly issued by the Regulator (SACAA), it confirmed that the helicopter met the applicable airworthiness standards and was considered ready for the flight, subject to continued maintenance compliance. In addition, the helicopter's Certificate of Registration (C of R) was formally issued to the current owner, and the registration details were consistent with the helicopter identification markings and official records. There was no evidence to suggest a lapse in certification status or regulatory non-compliance relating to the helicopter's airworthiness or registration. Accordingly, the helicopter was legally certificated and authorised for operation at the time of the flight.

2.2.8. Based on the fuel testing, engine inspection and flight control examination, there was no evidence of a mechanical, fuel-related or control system failure that would have precipitated the accident. The findings support the conclusion that the helicopter systems were functioning normally prior to the wire strike and the subsequent in-flight break up.

Environment

2.2.9. A review of the meteorological information at the time and in the area of the occurrence indicated that the weather parameters had remained within the acceptable limits for aerial agricultural operations. There was no evidence of adverse conditions such as low cloud, reduced visibility, precipitation, convective activity, significant turbulence or excessive wind that would have adversely affected aircraft performance or controllability. Although the helicopter was operating facing the rising morning sun during the south-easterly spray run, this constituted an environmental sun glare condition rather than a meteorological hazard. However, the sun glare significantly reduced the pilot's visibility which consequently led to the mast bumping. Based on the available data, weather conditions did not contribute to this accident.

3. CONCLUSION

3.1. General

From the available evidence, the following findings, causes and contributing factors 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 conclusion 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.
- **Causes —** are actions, omissions, events, conditions, or a combination thereof, which led to this accident.
- **Contributing factors —** are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident occurring, or would have mitigated the severity of the consequences of the accident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil, or criminal liability.

3.2. Findings

3.2.1. The pilot had a Commercial Pilot Licence (CPL) that was initially issued on 8 October 2024 in accordance with (IAW) Part 61 of the CAR 2011. The licence was revalidated on 17 October 2025 with an expiry date of 16 October 2026.

3.2.2. The pilot had a Class 1 aviation medical certificate that was issued on 3 September 2025 with an expiry date of 30 September 2026 with no medical restrictions.

3.2.3. The flight involved aerial survey operations classified as very high-risk which required pilots to meet the manufacturer's recommended experience levels. The pilot did not meet these recommended manufacturer's thresholds; however, the pilot met the required regulatory threshold for conducting aerial application operations (CAR 61.25.1).

3.2.4. The helicopter had a Certificate of Registration that was issued on 24 June 2019 to the current owner. The helicopter's Certificate of Airworthiness (C of A) was initially issued on 8 February 2019; the latest C of A had an expiry date of 28 February 2026. The operator had an Air Operating Certificate (AOC) that was issued by the Regulator on 6 May 2025 with an expiry date of 31 May 2026.

3.2.5. The helicopter was maintained by an approved aircraft maintenance organisation (AMO) with an AMO Certificate that was issued by the Regulator on 2 December 2024 and expiring on 31 December 2025.

3.2.6. The last mandatory periodic inspection (MPI) of the helicopter was conducted on 7 October 2024 at 5 384.0 hours. The Certificate of Release to Service (CRS) was issued on 29 September 2025 with an expiry date of 28 September 2025 or at 5 390.4, whichever occurs first. The helicopter had accrued 3.2 hours after the latest MPI.

3.2.7. The pilot was engaged in a crop-spray operation at Roodegrond Citrus Farm and, during the south-easterly sector run, the main rotor mast impacted a 1 000-Volt powerline. The main rotor blades severed the tail boom and, subsequently, the helicopter crashed to the ground, approximately 37m from the point of impact with the powerline. The pilot was fatally injured; the helicopter was destroyed during the accident sequence.

3.2.8. Low-level flight operations conducted during aerial work are permitted under the Civil Aviation Regulations 2011, Part 91, Subpart 06.32 (91.06.32), provided that the flight can be conducted without hazard to persons or property on the ground.

3.2.9. The operator had a valid AOC that was issued by the Regulator, and which was in force at the time of the accident. The helicopter was listed in the operator's approved Operations Specifications, authorising its use for the intended aerial agricultural operations.

3.2.10. The organisation (operator's) SOP aligned with the CAR regarding the minimum flight hours that an agricultural pilot must possess. There was no evidence of regulatory non-compliance.

3.3. Probable Cause/s

3.3.1. During a crop-spraying operation, the helicopter impacted the overhead powerlines, which resulted in loss of control and crash to the ground.

3.4. Contributory Factor/s

3.4.1. Reduced visual conspicuity of powerlines.

3.4.2. Inadequate aerial inspection.

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. It is recommended to the Director of the South African Civil Aviation Authority that a notice regarding low-level agricultural or aerial work operations be issued to pilots to emphasise the hazards associated with overhead powerlines and other man-made obstacles. The notice should highlight the importance of thorough pre-flight planning and aerial reconnaissance, maintaining adequate obstacle clearance and exercising heightened vigilance when operating at low altitude, particularly when flying facing the sun in which glare might reduce the ability to detect wires. Additionally, pilots operating helicopters such as the Robinson R22 should be reminded of the manufacturer's safety notices regarding the risks of wire strikes during low-level operations as well as the minimum hours (experience levels) that a pilot should have to ensure that the recommended thresholds are met.

4.2.2. It is recommended to the Director of the South African Civil Aviation Authority that the minimum flight hours that an agricultural pilot possesses should align with Safety Notice 34 of Robinson R22 which is the manufacturer's recommended experience threshold to ensure that safety margins are complied with.

5. APPENDICES

5.1. None.

This report is issued by:

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