

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

			Reference:		CA18/2/3/10518	
Aircraft Registration	ZU-RGR	Date of Accident	15 October 2024		Time of Accident	0730Z
Type of Aircraft	Magni Gyro M-24		Type of Operation		Private (Part 94)	
Pilot-in-command Licence Type	National Pilot Licence		Age	52	Licence Valid	Yes
Pilot-in-command Flying Experience	Total Flying Hours		938.0		Hours on Type	Unknown
Last Point of Departure	Nelspruit Airport (FANS), Mpumalanga Province					
Next Point of Intended Landing	Musina Aerodrome (FAMH), Limpopo Province					
Damage to Aircraft	Destroyed					
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Hanglip Mountain in Louis Trichardt at Global Positioning System (GPS) co-ordinates determined to be 22°59' 38.6" South 29°54' 19.9" East, at an elevation of 4 770 feet (ft)						
Meteorological Information	Surface wind: 060°/6kt; temperature: 11°C; dew point: 0°C; Cloud base: overcast					
Number of People On-board	1 + 0	Number of People Injured	0	Number of People Killed	1	Other (On Ground) 0
Synopsis						
<p>On Tuesday morning, 15 October 2024, a pilot on-board a Magni Gyro M-24 aircraft with registration ZU-RGR took off on a private flight from Nelspruit Airport (FANS) in Mbombela, Mpumalanga province, to Musina Aerodrome (FAMH) in Limpopo province. Reports revealed that the aircraft departed from FANS at 0630Z but did not reach the destined aerodrome (FAMH) at the expected time. On the same afternoon, a pilot's family member called the pilot on his mobile phone, but there was no response. The family member then called the aircraft operators at FAMH to enquire if ZU-RGR had landed at the aerodrome; the response was negative. On Wednesday, 16 October 2024, the pilot's family member notified the Aeronautical Rescue Coordination Centre (ARCC) office about the missing aircraft, as well as shared the last known location of the aircraft which was captured on her (family member's) mobile phone during the last call with the pilot; the location was recorded at 0730Z on 15 October 2024. On Thursday, 17 October 2024, the ARCC initiated the official search and rescue operation which involved the South African Police Service (SAPS) Airwing and Drone Units from Pretoria, a volunteer Search and Rescue Unit (V45 SARZA) from Tzaneen in Limpopo province, local private aircraft operators, and a private security company in Louis Trichardt, Limpopo province. Around 1400Z on 17 October 2024, the SAPS drone pilot spotted the wreckage near the top of Hanglip Mountain in Louis Trichardt. The aircraft was destroyed by impact and a post-impact fuel-fed fire. The pilot was fatally injured. Post-accident examination of the wreckage revealed no pre-impact anomalies that would have precluded normal operation of the aircraft. The investigation revealed that visibility was limited in the area around the time of the accident which resulted in the pilot (with no instrument rating) losing situational awareness in instrument meteorological conditions (IMC) and, thus, crashed on the mountain. This is referred to as controlled flight into terrain (CFIT).</p>						
Probable Cause						
Controlled flight into terrain (CFIT) after a pilot with no instrument rating entered instrument meteorological conditions.						
Contributory Factor: Poor flight planning.						
SRP date	10 June 2025		Publication date	13 June 2025		

Occurrence Details

Reference Number : CA18/2/3/10518
Occurrence Category : Accident (Category 1)
Type of Operation : Private (Part 94)
Name of Operator : Gerhard Cornelius Minnaar
Aircraft Registration : ZU-RGR
Aircraft Make and Model : Magni Gyro, M-24 Orion
Nationality : South African
Place : Hanglip Mountain in Louis Trichardt, Limpopo Province
Date and Time : 15 October 2024 at 0730Z
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 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 an accident on 15 October 2025. 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. A notification was sent to the State of Design and Manufacturer in accordance with the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) Annex 13 Chapter 4. The State appointed a non-travelling accredited representative as well as an expert. An investigator was dispatched to the accident site.

Notes:

- Whenever the following words are mentioned in this report, they shall mean the following:
Accident — this investigated accident
Aircraft — the Magni Gyro M-24 Orion involved in this accident
Investigation — the investigation into the circumstances of this accident
Pilot — the pilot involved in this accident
Report — this accident report*
- Photos and figures used in this report were taken from different sources and may have been adjusted from the original to improve the clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression; 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
AIID	Accident and Incident Investigations Division
ARCC	Aeronautical Rescue Coordination Centre
AGL	Above Ground Level
AMSL	Above Mean Sea Level
AI	Attitude Indicator
ATF	Authority-to-fly
CAR	Civil Aviation Regulations
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
ELT	Certificate of Release to Service
FAPP	Polokwane Airport
FANS	Nelspruit Airport
FAMN	Musina Aerodrome
FATZ	Tzaneen Aerodrome
FALO	Louis Trichardt Airfield
FDR	Flight Data Recorder
Ft	Feet
GPS	Global Positioning System
JHB	Johannesburg
IAW	In Accordance With
ICAO	International Civil Aviation Organisation
IIC	Investigator-in-Charge
Km/h	Kilometres per Hour
hPa	Hectopascal
Kt/s	Knots/s
Lbs	Pounds
L	Litres
M	Metres
MM	Millimetres
METAR	Meteorological Aerodrome Report
IMC	Instrument Meteorological Condition
QNH	Query: Nautical Height
RWY	Runway
SACAA	South African Civil Aviation Authority
SAPS	South African Police Service

SAWS	South African Weather Service
POH	Pilot's Operating Handbook
PPL	Private Pilot Licence
SP	Student Pilot
TAF	Terminal Area Forecast
TBO	Time Between Overhaul
TTSN	Total Time Since New
UTC	Universal Co-ordinated Time
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VDL	Corrective Lenses for Defective Distant Vision
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 On Tuesday morning, 15 October 2024, a pilot on-board a Magni Gyro M-24 aircraft with registration ZU-RGR was conducting a private flight from Nelspruit Airport (FANS) in Mbombela, Mpumalanga province, to Musina Aerodrome (FAMH) in Limpopo province. The pilot did not file a flight plan. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.
- 1.1.2 A witness who saw the aircraft at FANS on Tuesday morning, 15 October 2024, stated that visibility was limited on the day due to the fog in the area. There was no record of the pilot receiving a weather briefing. The pilot taxied the aircraft to the threshold of Runway 22 and performed the pre-departure checks. Around 0630Z, the aircraft departed from FANS and headed in the direction of White River. In the afternoon of the same day, a pilot's family member called him (the pilot) on his mobile phone, but there was no response. The family member later called the aircraft operators at FAMH to enquire if the ZU-RGR had landed at FAMH; the response was negative. On Wednesday, 16 October 2024, the pilot's family member notified the Aeronautical Rescue Coordination Centre (ARCC) office in Johannesburg (JHB) about the missing aircraft; she also shared the last known location of the aircraft which was captured on her mobile phone during the last call to the pilot at 0730Z on 15 October 2024.
- 1.1.3 On Thursday, 17 October 2024, the ARCC initiated the official search and rescue operation which involved the South African Police Service (SAPS) Airwing and Drone Unit from Pretoria, a volunteer Search and the Rescue Unit (V45 SARZA) from Tzaneen in Limpopo province, private aircraft operators in the area, and a private security company from Louis Trichardt in Limpopo province. Around 1400Z, the wreckage was spotted by the SAPS drone pilot near the top of Hanglip Mountain in Louis Trichardt, approximately 4 nautical miles (nm) south-west of Louis Trichardt Civil Airfield (FALO). Photographs taken by the drone pilot showed that the aircraft had crashed and was largely consumed by fire. The drone pilot later searched for a suitable spot on which the rescue team could land and commence with the recovery operation. On Saturday morning, 19 October 2024, the SAPS Squirrel helicopter departed from Pretoria to Louis Trichardt. The Squirrel helicopter crew was joined by the V45 SARZA team and the investigator-in-charge (IIC) on a flight to the accident site. The V45 SARZA team and the IIC were hoisted down to the accident scene as it was inaccessible by road. The team found that the aircraft was destroyed by impact forces and the post-impact fuel-fed fire. The pilot was fatally injured.
- 1.1.4 Locals near the accident site at Louis Trichardt stated that there were low clouds on the morning of 15 October 2024 around the accident time, and that visibility was limited. Some

of the locals recalled seeing a small aircraft heading in the direction of the mountain. They stated that the aircraft made a few turns before the engine sound went silent. None of the locals recalled an impact sound, however, some stated that they had seen smoke later that day near the top of Hanglip Mountain which persisted until the arrival of the V45 SARZA team on 17 October 2024. The V45 SARZA team leader at the scene notified his organisation (SARZA) about the fire after which the Working on Fire company was contracted. The Working on Fire management dispatched a spotter aircraft and a helicopter to the accident site; the helicopter dropped about 18 buckets of water to put out the fire. The fire was contained but a large part of the site was already burnt.

1.1.5 The accident occurred during daytime at Global Positioning System (GPS) co-ordinates determined to be 22°59' 38.6" South 29°54' 19.9" East, at an elevation of 4 770 feet (ft).

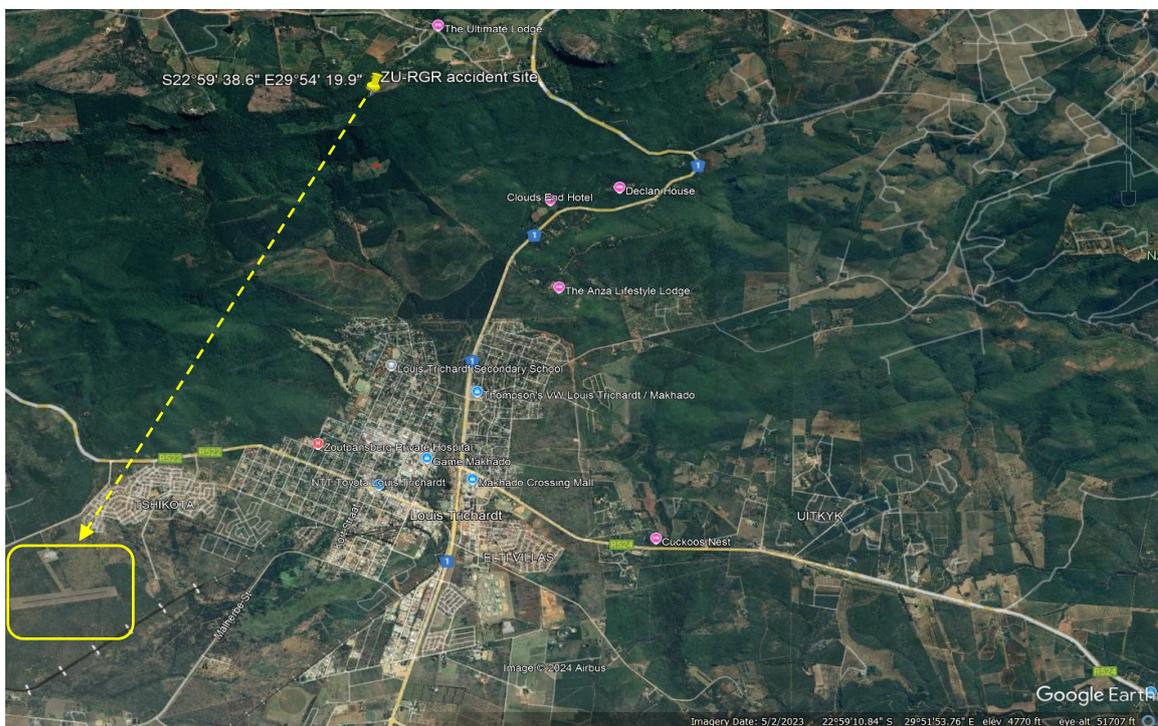


Figure 1: The accident site and Louis Trichardt Civil Airfield (FALO). (Source: Google Earth)

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.

1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed by impact forces and the post-impact fuel-fed fire.



Figure 2: The wreckage with the tail number still visible. (Source: ARCC)

1.4 Other Damage

1.4.1 The fire damaged vegetation around the accident site.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	52
Licence Type	National Pilot Licence (NPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	28 February 2026				
Restrictions	Suitable corrective lenses for defective distant vision (VDL)				
Previous Accidents	None				

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

Flying Experience:

Total Hours	938.0
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

- 1.5.1 The investigation team made efforts to obtain the pilot's logbook from the family representative, but without success; therefore, the pilot's flying hours at the time of the accident flight could not be determined. The approximate hours shown above were obtained from the pilot's file which was kept at the South African Civil Aviation Authority (SACAA) premises. The hours were recorded during the pilot's licence renewal on 25 February 2023.
- 1.5.2 The pilot had a National Pilot Licence (NPL) that was initially issued on 27 November 2014 in accordance with (IAW) Part 62 of the CAR 2011. The licence was revalidated by the SACAA on 25 February 2023 with an expiry date of 24 February 2025. The pilot had the aircraft type (Magni Gyro M-24 Orion) endorsed on his licence; however, he did not have the instrument flight rules (IFR) rating.
- 1.5.3 The pilot had a Class 4 medical certificate that was issued on 23 February 2023 with an expiry date of 24 February 2026 with a restriction to wear suitable corrective lenses for defective distant vision (VDL).

1.6 Aircraft Information

1.6.1 Aircraft Description (Source: Pilot Operating Handbook [POH])

The Magni Gyro M-24 Orion is a two seat, side-by-side, enclosed cockpit aircraft powered by a 115 horsepower (hp) Rotax 914-UL turbocharged piston engine driving a 3-bladed Ecoprop GL-3 ground adjustable propeller, and a 2-bladed rotor mounted on a mast above the pod. The aircraft is certified for day operation only and under VFR. The maximum operating altitude of the aircraft is 13 000ft density altitude and maximum take-off weight is 450 kilograms (kg) / 992 pounds (lbs). The aircraft comprises of the 82 litres (l) fuel tank capacity, providing 4 hours of flight endurance at a cruise speed of between 120 and 150 kilometres per hour (km/h).



Figure 3: The file picture of the ZU-RGR aircraft. (Source: The rescue team)

Airframe:

Manufacturer and Model	Magni Gyro / Orion M-24	
Serial Number	24169574	
Year of Manufacture	2016	
Total Airframe Hours (at time of the accident)	Unknown	
Last Annual Inspection (Hours & Date)	610.6	25 March 2024
Airframe Hours Since Last Inspection	Unknown	
ATF (Issue Date & Expiry Date)	22 March 2024	31 March 2025
C of R (Issue Date) (Present Owner)	26 September 2024	
Type of Fuel Used	Avgas 100LL	
Operating Category	Private (Part 94)	
Previous Accidents	None	

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

Note*: The total airframe hours at the time of the accident and the hours flown since the last annual inspection could not be determined because the Hobbs meter, Tachometer and the flight folio were destroyed by the post-impact fire that erupted during the accident.

Engine:

Manufacturer/Model	Rotax / 914-UL
Serial Number	9575461
Hours Since New	610.6
Hours Since Overhaul	Time between Overhaul (TBO) is 2 000 hours – TBO not reached

Propeller:

Manufacturer/Model	Magni / Ecoprop GL-3
Serial Number	369
Hours Since New	516.4
Hours Since Overhaul	TBO is 3 000 hours - TBO not reached

1.7 Meteorological Information

- 1.7.1 An official weather report was obtained from the South African Weather Service (SAWS). The meteorological aerodrome report (METAR) message was recorded at Polokwane Airport (FAPP) on 15 October 2024 at 08H15 (local time). FAPP is the closest location to the accident site.

1.7.2 The satellite indicated low clouds below 10 000 feet (ft); however, the METAR recorded at FAPP indicated that the lowest clouds were 2 000ft above ground level (AGL).

Wind Direction	060°	Wind Speed	6kt	Visibility	Limited
Temperature	11°C	Cloud Cover	OVC – FEW 2 000ft	Cloud Base	2 000ft
Dew Point	Nil	QNH	1027hPa		

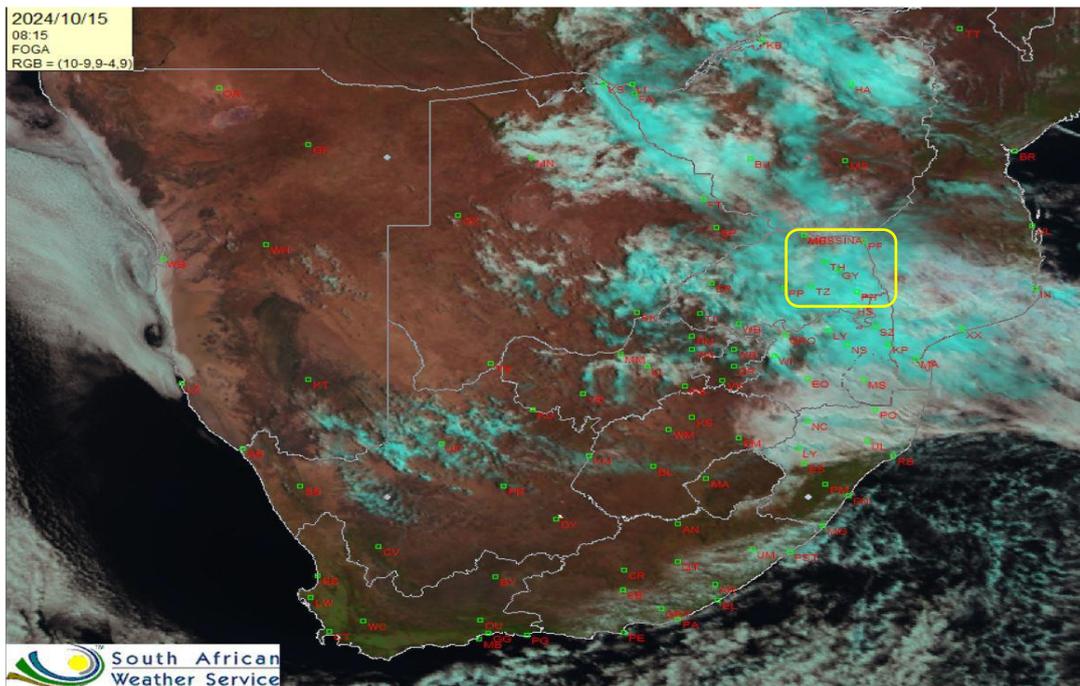


Figure 4: The satellite image at 08:15 (local time) on 15 October 2024.

1.8 Aids to Navigation

1.8.1 The aircraft 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 aircraft 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

Aerodrome Name	Louis Trichardt Civil Airfield (FALO)
Aerodrome Location	Limpopo Province
Aerodrome Status	Licensed
Aerodrome GPS coordinates	23°3'.72" South 29°51'.89" East
Aerodrome Elevation	3 025 feet
Runway Headings	10 / 28
Dimensions of Runway	1 200m X 18
Surface of Runway	Asphalt
Approach Facilities	Runway lighting
Radio Frequency	None

1.11 Flight Recorders

1.11.1 The aircraft 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 aircraft type.

1.12 Wreckage and Impact Information

1.12.1 The aircraft crashed near the top of Hanglip Mountain at an elevation of approximately 4 770ft. The elevation (to the top of the mountain) is 5 640ft. The aircraft initially impacted the trees at a high speed on the east side of the mountain at a heading of approximately 331°. It was evident that a significant amount of energy at impact was absorbed by the canopy before the aircraft reached the ground. The aircraft was destroyed by the post-impact fuel-fed fire. Despite the extensive damage to the aircraft structure due to impact and the fire, it was established that the aircraft was intact at the time of the accident. There was no evidence of pre-impact damage to either the propeller or main rotor blades. The rudder had remained attached to the keel. The right horizontal stabiliser was undamaged, however, the left fin and the left horizontal stabiliser sustained substantial damage.



Figure 5: The tail section and the damaged left fin/horizontal stabiliser.

1.12.3 The fuel pump toggle switches and the ignition key were found in the “on” position; however, some switches were damaged. Most of the instruments were destroyed by the fire blaze. The beams that supported the pilot’s side of the seat had bent rearwards. The buckles on each of the four-point harnesses were found still connected and in “locked” position, and all the seat harness attachment fittings were still attached to the aircraft’s structure. The nosewheel fork was found broken, which was consistent with the impact force. The main landing gear beams and wheel assemblies were still attached; however, the tyres were burnt. The door frames and the windshield were destroyed by the post-impact fire.



Fuel pumps toggle switches and the ignition key in the “on” position

Figure 6: The fuel pumps toggle switches and the ignition key after the accident.

1.12.4 Before impact with the ground, one of the aircraft’s main rotor blades severed one of the tree branches at an estimated height of 3 metres (m). The tree was damaged by the turning rotor, an indication that the engine was producing substantial power at the time of the accident.

1.12.5 The main rotor blade tip that hit the tree was severed. The rotor head was in place; however, one of the rods was found slightly bent.



Figure 7: The area where a tree branch separated after it was hit by the rotating main rotor blade.



Figure 8: The severed tree branch.



Figure 9: The severed tip of the main rotor blade that hit the tree branch.



Figure 10: The main rotor head and the bent rod.

1.13 Medical and Pathological Information

1.13.1 A post-mortem examination of the pilot was performed. At the time of the release of this report, the results of the post-mortem and the toxicology tests were not available. Should the results have substantive impact on the outcome of this investigation which will be considered new evidence, the AIID will reopen this investigation.

1.14 Fire

1.14.1 There was a post-impact fuel-fed fire that erupted and consumed a large part of the aircraft structure and trees around the accident site.

1.14.2 The initial ignition source of the fire could not be positively identified. However, it is likely that fuel from the ruptured fuel tank was ignited by a combination of hot engine parts and/or from friction sparks of various metallic aircraft pieces as they traversed the ground. The intense fire in and around the cockpit was fed by fuel spilling from the ruptured tank. The fire intensity was severe as the aluminium alloy components and structures in the aircraft were consumed or melted.

1.15 Survival Aspects

1.15.1 The accident was considered not survivable due to the impact damage and the post-impact fuel-fed fire which compromised the structural integrity of the aircraft. The pilot was fatally injured during the accident sequence.

1.15.2 The aircraft was not equipped with an emergency locator transmitter (ELT), and it was not a requirement in accordance with (IAW) Part 91.04.23 (b) of the SACAA regulations.

1.16 Tests and Research

1.16.1 Examination of the wreckage indicated that the aircraft was intact prior to the accident. Although post-accident examination of the airframe and engine was limited due to the significant impact and fire damage, the examination revealed no evidence of mechanical malfunctions or failures that could have precluded normal operation. Rotational continuity was established throughout the engine and valve train when the engine was manually rotated. Thumb compression and suction were obtained for all cylinders. The cylinder combustion chambers and barrels were examined; and the cylinder bores, valve heads and piston faces displayed normal operation and combustion signatures. The damage on one of the main rotor blades indicated that the engine was producing a substantial amount of power

at the time of impact. However, the amount of power could not be determined. The main rotor blade (Figure 9) indicated that it struck and severed the tree branch at high revolutions per minute (RPM). Examination of the engine also revealed no pre-impact anomalies that could have precluded normal operation.

1.17 Organisational and Management Information

1.17.1 The private flight was conducted under the provisions of Part 94 of the CAR 2011 as amended.

1.17.2 The approved person (AP) who conducted the last 100-hour annual inspection of the aircraft had an Approved Person Certificate that was issued by the SACAA on 1 March 2023 with an expiry date of 28 February 2025.

1.18 Additional Information

1.18.1 Minimum Heights

91.06.32 (1) *Except when necessary for taking off, or landing, or except with prior written approval of the Director, no aircraft –*

(a) shall be flown over congested areas or over an open-air assembly of persons at a height less than 1 000 feet above the highest obstacle, within a radius of 2 000 feet from the aircraft;

(b) when flown elsewhere than specified in paragraph (a), shall be flown at a height less than 500 feet above the ground or water, unless the flight can be made without hazard or nuisance to persons or property on the ground or water and the PIC operates at a height and in a manner that allows safe operation in the event of an engine failure; and

(c) shall circle over or do repeated overflights over an open-air assembly of persons at a height less than 3 000 feet above the surface.

1.18.2 Controlled Flight into Terrain (Source: Federal aviation Administration [FAA])

Controlled flight into terrain (CFIT) accident occurs when an airworthy aircraft, experiencing no contributory systems or equipment problems, under the control of a certificated, fully qualified flight crew no suffering from any impairment, is flown into terrain (or water or obstacle) with no demonstrated prior awareness of the impending collision on the part of the crew. Or, if the flight crew was aware of the impending collision, they were unable to prevent it. Because they involve high-speed impacts, CFIT accidents usually have disastrous consequences. Most CFIT accidents have in common a chain of events leading to what human factors expert's term "lack of situational awareness" on the part of the flight crew.

Conditions of limited visibility (due to darkness or weather or both) are typically a major contributing factor. Other such contributing factors include inadequate flight planning, poor pilot decision-making, poor crew resource management, lack of proper communications with air traffic control personnel, and lack of awareness of, or disregard for, applicable flight rules and procedures.

1.18.3 Meteorological Conditions

91.07.9 (1) *On a flight, conducted in accordance with VFR, the pilot shall not commence take-off unless current meteorological reports, or a combination of current reports and forecasts, indicate that the meteorological conditions along the route, or that part of the route to be flown under VFR, shall, at the appropriate time, be such as to enable compliance with the provisions prescribed in this Part.*

(2) *A flight, to be conducted in accordance with IFR—*

(a) shall not take-off from the departure aerodrome unless meteorological conditions, at the time of use, are at or above the operator's established aerodrome operating minima for that operator; and

(b) shall not take off or continue beyond the point of in-flight pointer-planning, unless at the aerodrome of intended landing or at each alternate aerodrome to be selected in accordance with regulation [91.07.7](#), current meteorological reports, or a combination of current reports and forecasters indicate that the meteorological conditions will be, at the estimated time of use, at or above the operator's established aerodrome operating minima for that operation.

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 concerning 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 was initially issued a National Pilot Licence (NPL) on 27 November 2014 IAW Part 62 of the CAR 2011. The licence was revalidated by the SACAA on 25 February 2023 with an expiry date of 24 February 2025. The pilot was issued a Class 4 medical certificate on 23

February 2023 with an expiry date of 24 February 2026 with a restriction to wear suitable corrective lenses for defective distant vision (VDL). His file at the SACAA facility showed that he had no significant medical condition/s. The pilot did not have an instrument flight rules (IFR) rating, and the aircraft was not equipped with IFR components such as the attitude indicator (AI).

Weather

2.2.2 An official weather report was obtained from the South African Weather Service (SAWS). The meteorological aerodrome report (METAR) was recorded at Polokwane Airport (FAPP) on 15 October 2024 at 08H15 (local time). The satellite indicated low clouds below 10 000ft; however, the METAR recorded at FAPP indicated that the lowest clouds were 2 000ft above ground level (AGL), meaning that visibility was limited at the time of the accident. No flight plan was filed and there was no record of the pilot receiving a weather briefing.

The aircraft

2.2.3 Post-accident examination of the technical records indicated that the last 100-hour annual inspection (MPI) of the aircraft was conducted and certified on 25 March 2024 at 610.6.3 total airframe hours. The total airframe hours at the time of the accident and the hours flown since the last annual inspection could not be determined because the Hobbs meter, Tachometer and the flight folio were destroyed by the post-impact fire. The approved person (AP) who conducted the last 100-hour annual inspection of the aircraft had an Approved Person Certificate that was issued by the SACAA on 1 March 2023 with an expiry date of 28 February 2025. All the entries in the aircraft technical records were found to have been properly certified. Records indicated that the aircraft was certified and maintained IAW the existing regulations and maintenance programme. Although the post-accident examination of the airframe and engine was limited due to the significant impact and fire damage, the examination revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. Damage sustained by one of the main rotor blades was an indication that the engine was producing a substantial amount of power at the time of the accident.

Conclusion

2.2.4 A witness who saw the aircraft at FANS on Tuesday morning, 15 October 2024, stated that visibility was limited due to fog in the area. The pilot seemed to have ignored the weather conditions and, around 0630Z, the aircraft departed from FANS and routed in the direction of White River; the aircraft was observed by the locals in Louis Trichardt. There were low clouds in the area and visibility was limited. The forecasted weather by the SAWS also indicated low clouds below 10 000ft in the area; however, the METAR recorded at FAPP indicated that the

lowest clouds were 2 000ft above ground level (AGL). This indicated that the aircraft entered instrument meteorological conditions, and the pilot was not qualified to fly in such conditions because he was not IFR rated. The aircraft type could only be operated under visual flight rules which require the pilot to maintain visual reference to the ground and other obstacles. The pilot seemed to have realised that the aircraft was in the vicinity of Louis Trichardt Civil Airfield (FALO) and had descended to clear the clouds to get visual of the runway. During the process, he appeared to have lost situational awareness and did not see the mountain given the IMC, and flew directly into it; thus, controlled flight into terrain (CFIT).

3. CONCLUSION

3.1 General

From the available evidence, the following findings and contributing factors were made concerning 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

Pilots

- 3.2.1 The pilot had a National Pilot Licence (NPL) that was issued on 27 November 2014 IAW Part 62 of the CAR 2011. The licence was revalidated on 25 February 2023 with an expiry date of 24 February 2025.
- 3.2.2 The pilot had a Class 4 medical certificate that was issued on 23 February 2023 with an expiry date of 24 February 2026 with a restriction to wear suitable corrective lenses for defective distant vision (VDL).
- 3.2.3 The pilot was not rated for instrument flight rules (IFR); thus, he was only allowed to fly under visual flight rules (VFR) by day and in clear weather conditions.

- 3.2.4 The last 100-hour annual inspection was certified on 25 March 2025 at 610.6 total airframe hours.
- 3.2.5 The AP who conducted the last 100-hour annual inspection of the aircraft had an Approved Person Certificate that was issued by the SACAA on 1 March 2023 with an expiry date of 28 February 2025.
- 3.2.6 The aircraft was issued a Certificate of Release to Service (CRS) on 25 March 2024 with an expiry date of 23 March 2025 or at 710.6, whichever occurs first.
- 3.2.7 The aircraft was re-issued an Authority-to-fly (ATF) Certificate on 2 May 2024 with an expiry date of 31 March 2025.
- 3.2.8 The aircraft was issued a Certificate of Registration (C of R) under the present owner on 26 September 2024.
- 3.2.9 The aircraft's impact point was near the top of Hanglip Mountain in Louis Trichardt, Limpopo province. The aircraft was destroyed by impact forces and the post-impact fuel-fed-fire; the pilot was fatally injured.
- 3.2.10 The aircraft type was certified for day operation only under VFR. Information gathered during the investigation revealed that visibility was restricted when the aircraft departed from FANS which was a contravention of the CAR 2011, Part 91.07.9.
- 3.2.11 The forecasted weather by the SAWS indicated low clouds below 10 000 feet (ft) in the area; however, the METAR recorded at FAPP indicated that the lowest clouds were 2 000ft above ground level (AGL). The weather condition had a bearing on this accident.
- 3.2.12 The aircraft was flown 870ft below the highest point of Hanglip Mountain, which was a contravention of the CAR 2011, Part 91.06.32.

3.3 Probable Cause

- 3.3.1 Controlled flight into terrain (CFIT) after a pilot with no instrument rating entered instrument meteorological conditions.

3.4 Contributory Factors

- 3.4.1 Poor flight planning.

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.

4.3 Safety Message

4.3.1 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**