AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:		CA18/2/3/10414	
Aircraft Registration	ZS-LUW	**Date of Accident**	27 January 2024			**Time of Accident**	0600Z
Type of Aircraft	Ayres S2R-T34 Turbo Thrush			**Type of Operation**		Private (Part 91)	
Pilot-in-command Licence Type	Commercial Pilot Licence (CPL)			**Age**	66	**Licence Valid**	Yes
Pilot-in-command Flying Experience		**Total Flying Hours**	3 717.2	**Total Hours on Type**		1 210	
Last Point of Departure	Bethlehem Aerodrome (FABM), Free State Province						
Next Point of Intended Landing	Kruger Mpumalanga International Airport (FAKN), Mpumalanga Province						
Damage to Aircraft	Destroyed						

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

Southern side of Ermelo Airfield (FAEO) at Global Positioning System (GPS) co-ordinates determined to be South 26°29´46.0" East 029°59´04.0" at an elevation of approximately 5 800 feet (ft)

Meteorological Information	Surface Wind: 100°; Windspeed: 01kt; Temperature: 16°C; Dew Point: 16°C; Visibility: poor						
Number of People On-board	1 + 0	**Number of People Injured**	0	**Number of People Killed**	1	**Other (On Ground)**	0

Synopsis

On Saturday morning, 27 January 2024, a pilot on-board the Ayres S2R-T34 Turbo Thrush aircraft with registration ZS-LUW was on a ferry flight from Bethlehem Aerodrome (FABM) in the Free State province to Kruger Mpumalanga International Airport (FAKN) in Mpumalanga province. The intention of the flight to FAKN was for the pilot to clear customs before proceeding to Chileka International Airport (FWCL) in Blantyre, Malawi, where the operator was contracted to provide aerial application services. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

The aircraft maintenance engineer (AME) from the aircraft maintenance organisation (AMO) based at FABM reported that the aircraft departed FABM at 0415Z. Around 0630Z, he received a call from Ermelo Airfield (FAEO) in Mpumalanga province through which he was informed that the ZS-LUW was involved in an accident on FAEO grounds. The locals residing south of the airfield who witnessed the accident notified the South African Police Service (SAPS) and the Emergency Medical Services (EMS) personnel. The aircraft was destroyed by impact forces and the fuel-fed fire that erupted. The pilot was pronounced deceased at the scene.

Probable Cause

The pilot lost situational awareness whilst flying the aircraft at high speed and at low height in instrument meteorological condition (IMC) without an instrument flight rules (IFR) rating, which resulted in the right-wing tip making contact with the ground (controlled flight into terrain [CFIT]).

SRP Date	11 June 2024	Publication Date	13 June 2024

Occurrence Details

Reference Number	**:** CA18/2/3/10414
Occurrence Category	**:** Category 1
Operator Name	**:** Osmond Aerial Spray (Pty) Ltd
Operator Type	**:** Private (Part 91)
Aircraft Registration	**:** ZS-LUW
Aircraft Make and Model	**:** Ayres Corporation, S2R-T34 Turbo Thrush
Nationality	**:** South African
Place	**:** Ermelo Airfield (FAEO)
Date and Time	**:** 27 January 2024 at 0600Z
Injuries	**:** Fatal
Damage	**:** Destroyed

Purpose of the Investigation

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Investigation Process

The Accident and Incident Investigations Division (AIID) was notified of the occurrence which involved the Ayres S2R-T34 Turbo Thrush which occurred in Ermelo Airfield (FAEO) in Mpumalanga province on 27 January 2024 at 0600Z. 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.

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Accident — this investigated accident
   Aircraft — Ayres S2R-T34 Turbo Thrush 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
°C	Degree Celsius
AGL	Above Ground Level
AI	Attitude Indicator
AIID	Accident and Incident Investigations Division
AIP	Aeronautical Information Publication
AME	Aircraft maintenance Engineer
AMO	Aircraft Maintenance Organisation
AMSL	Above Mean Sea Level
C of A	Certificate of Airworthiness
C of R	Civil Aviation Regulations
CAA	Civil Aviation Authority
CAR	Certificate of Registration
CB	Circuit Breaker
CPL	Commercial Pilot Licence
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
ELT	Emergency Locator Transmitter
EMS	Emergency Medical Services
FABM	Bethlehem Aerodrome
FAEO	Ermelo Airfield
FAKN	Kruger Mpumalanga International Airport
FCU	Fuel Control Unit
FDR	Flight Data Recorder
Ft	Feet
FWCL	Chileka International Airport
GPS	Global Positioning System
hPa	Hectopascal
IAW	In Accordance With
IFR	Instruments Flight Rules
IIC	Investigator-in-charge
IMC	Instrument Meteorological Conditions
Kts	Knots
M	Metre
MPI	Mandatory Periodic Inspection
POH	Pilot's Operating Handbook
QNH	Query: Nautical Height
RPM	Revolutions per Minute
SACAA	South Africa Civil Aviation Authority
SAPS	South African Police Service
SAWS	South African Weather Service
SHP	Shaft Horsepower
TBO	Time Between Overhaul
US	United States
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 Saturday morning, 27 January 2024, a pilot on-board the Ayres S2R-T34 Turbo Thrush aircraft with registration ZS-LUW was on a ferry flight from Bethlehem Aerodrome (FABM) in the Free State province to Kruger Mpumalanga International Airport (FAKN) in Mpumalanga province. The intention of the flight to FAKN was for the pilot to clear customs before proceeding to Chileka International Airport (FWCL) in Blantyre, Malawi, where the operator was contracted to provide aerial application services. According to the operator's representative, there was no flight plan filed for the flight from FABM to FAKN. The flight plan filed was from FAKN to Malawi. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

1.1.2. The aircraft maintenance engineer (AME) from the aircraft maintenance organisation (AMO) facility based at FABM stated that he had a conversation with the pilot that morning whilst he was preparing the aircraft for the flight. He stated that the pilot looked well-rested and mentally fit. The AME further stated that the pilot had the Navigation App downloaded to his mobile phone because he did not have a portable Global Positioning System (GPS) unit and the aircraft was not fitted with one. The pilot examined the aircraft's technical documentation, and no anomalies were noted. The aircraft had 228 United States (US) gallons of Jet A1 fuel in the tanks. It is not known if the pilot had considered the en route weather conditions before the flight. The pilot boarded the aircraft and started the engine. He allowed the engine to run for a while until all the engine indications were within the normal range. The AME stated that the pilot showed a thumbs-up before taxiing the aircraft to the runway in preparation for departure. Around 0415Z, the aircraft departed FABM and progressed north towards Ermelo Aerodrome (FAEO) in Mpumalanga province.

1.1.3. At approximately 0630Z, the AME received a call from FAEO who informed him that ZS-LUW was involved in an accident on the grounds of FAEO around 0630Z. The locals who reside south of the airfield and who witnessed the accident notified the South African Police Service (SAPS) and the Emergency Medical Services (EMS). The aircraft was reported to have been destroyed by impact forces and the fuel-fed fire that erupted. The SAPS officials secured the accident scene until the arrival of the investigating team. The pilot was pronounced deceased at the accident scene.

1.1.4. Witnesses along the aircraft route in Ermelo residential area recalled seeing the aircraft which was flying northerly at a low altitude towards FAEO. It disappeared from their view due to poor visibility in the area at the time.

1.1.5. The accident occurred in the morning on FAEO grounds (southern side) at GPS co-ordinates determined to be South 26°29´46.0" East 029°59´04.0" at an elevation of approximately 5 800 feet (ft).

Figure 1: The planned route from the departure aerodrome. (Source: Google Earth)

Figure 2: Aerial view of FAEO shows the approximate flight path and point of impact. (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.

Figure 3: The wreckage at the accident site.

1.4. Other Damage

1.4.1 Other damage was limited to the FAEO perimeter fence. The aircraft knocked down about 12 metres (m) of the fence during the accident sequence.

Figure 4: The knocked down perimeter fence on the northern side of the airfield.

1.5. Personnel Information

1.5.1 The Pilot Flying (PF)

Nationality	South African	Gender	Male	Age	66
Licence Type	Commercial Pilot Licence (CPL)				
Licence Issue Date	11 January 2023	Licence Expiry Date	31 December 2024		
Licence Valid	Yes	Type Endorsed	Yes		

Ratings	Night and Agricultural pilot ratings		
Medical Class	Class 1		
Medical Issue Date	17 October 2023	Medical Expiry Date	30 April 2024
Limitations	Suitable corrective lenses		
Previous Accidents	None		

Flying Experience:

Total Flying Hours	3 717.2
Total Hours Past 24 Hours	Unknown
Total Hours Past 7 Days	Unknown
Total Hours Past 90 Days	Unknown
Total Hours on Type Past 90 Days	Unknown
Total Hours on Type	1 210

1.5.2 The investigator-in-charge (IIC) had made attempts to obtain the deceased pilot's logbook from the family representative. An email, dated 27 March 2024, was sent to the family representative but no response was received at the time of finalising this report.

1.5.3 The hours reflected on the table above were obtained from the operator at FABM. The pilot was initially issued a Commercial Pilot Licence (CPL) on 11 May 2004. The CPL was reissued on 11 January 2023 with an expiry date of 31 December 2024. The aircraft type (Ayres S2R-T34 - Turbine) was endorsed on his licence. The pilot had both the night and agricultural pilot ratings and had no instrument flight rules (IFR) rating. He was issued a Class 1 aviation medical certificate on 17 October 2023 with an expiry date of 30 April 2024.

1.5.4 The pilot had a restriction to wear suitable corrective lenses. His profile at the SACAA database indicated that he had no medical problems.

1.6. Aircraft Information

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

The Ayres S2R-T34 Turbo Thrush is a single seat, low wing, fixed gear agricultural aircraft designed for crop-dusting and aerial spraying. It was powered by a Pratt & Whitney PT6A-34AG turboprop engine with serial number PC-E56229, rated at 750 shaft horsepower (SHP) and a three-blade Hartzell constant speed, full feathering, reversible, hydraulic actuated propeller, model number HC-B3TN-3C with serial number BUA30373. The maximum propeller speed offered by the engine model is 2 200 revolutions per minute (RPM). The aircraft was certified for day operation under visual flight rules (VFR) only, meaning that it had nil instruments flight rules (IFR) instruments fitted to it.

Figure 5: The file picture of the ZS-LUW aircraft. (Source: https://.www.airliners.net.photos)

Airframe:

Manufacturer/Model	Ayres Corporation, S2R-T34 Turbo Thrush	
Serial Number	6009	
Year of Manufacture	1979	
Total Airframe Hours (At Time of Accident)	11 962.3	
Last Inspection (Date & Hours)	12 January 2024	11 961.3
Hours Since Last Inspection	1.00	
CRS Issue Date	12 January 2024	
Certificate of Airworthiness (Issue Date & Expiry Date)	29 September 2023	31 October 2024
C of R (Issue Date) (Present Owner)	18 May 2018	
Type of Fuel Used	Jet A1	
Operating Category	Private (Part 91)	
Previous Accidents	None	

1.6.2. The last 100-hour mandatory periodic inspection (MPI) that was conducted on the aircraft prior to the accident flight was certified on 12 January 2024 at 11 961.3 total airframe hours. The accident occurred at 11 962.3 estimated airframe hours, which meant that the aircraft accrued 1.00 hour since the MPI inspection.

Engine:

Manufacturer/Model	Pratt & Whitney Canada / PT6A
Serial Number	PC-E56229
Part Number	PT6A-34AG
Hours Since New	8 467.9
Hours Since Overhaul	3 121.8 (Time Between Overhaul [TBO] is 4 500 hours)

Propeller:

Manufacturer/Model	Hartzell / HC-B3TN-3C
Serial Number	BUA30373
Part Number	Unknown
Hours Since New	348.9
Hours Since Overhaul	TBO not reached (TBO is 3 000 hours)

1.7. Meteorological Information

1.7.1 The weather information in the table below was obtained from the South African Weather Service (SAWS) on 27 January 2024.

1.7.2 The satellite images at 0600Z on 27 January 2024 indicated a bank of thick Stratus (fog) Clouds over the eastern and central Mpumalanga Highveld areas.
METAR FAEO 270600Z 10001KT 0400 FG OVC004 16/16 Q1026=

Wind Direction	100º	Wind Speed	01kt	Visibility	Zero
Temperature	16ºC	Cloud Cover	Overcast	Cloud Base	400ft
Dew Point	16ºC	QNH	1026 hPa		

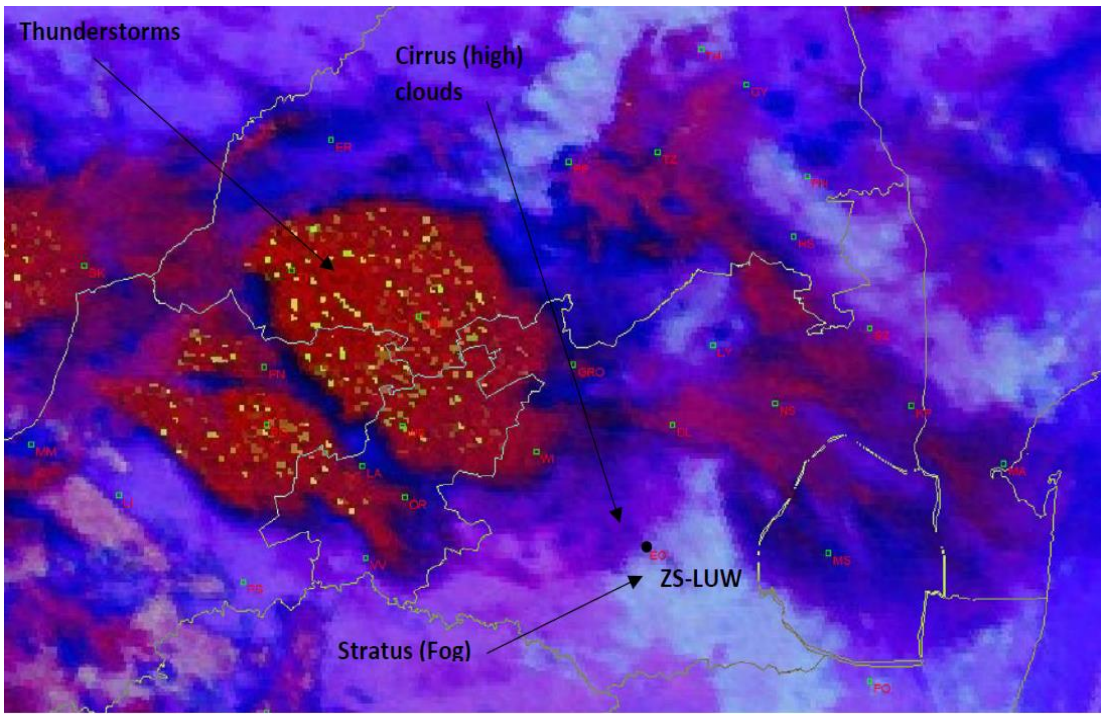

Figure 6: The weather image showing thick Stratus (fog) Clouds at the accident area.

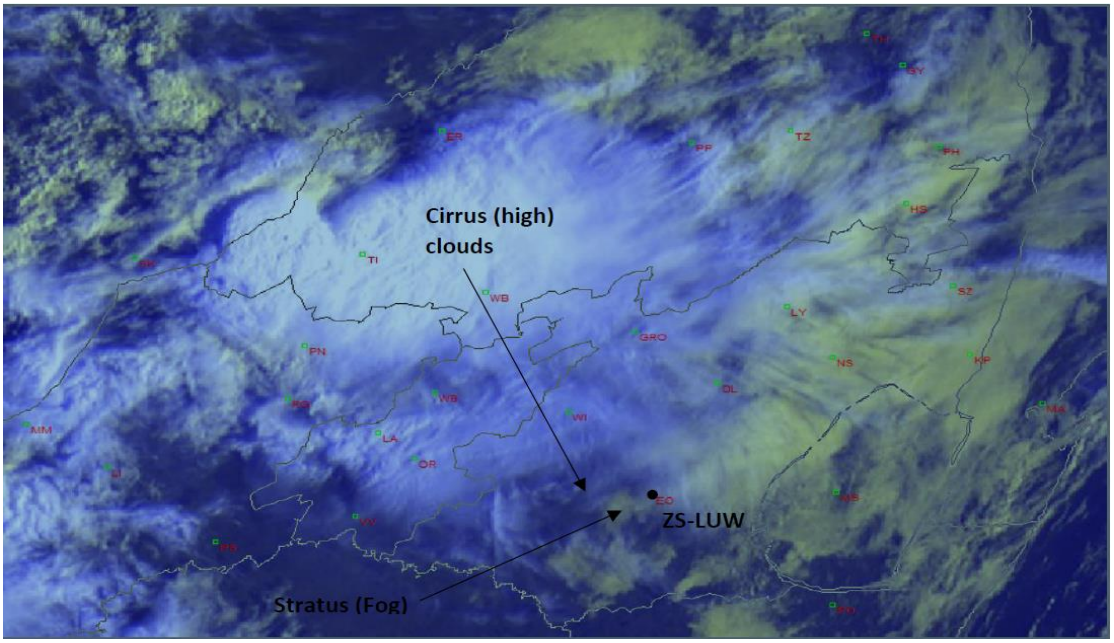

Figure 7: Thick Stratus (FOG) Clouds at the accident area.

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 accident flight.

1.10. Aerodrome Information

1.10.1. The accident occurred in the morning at FAEO at GPS co-ordinates determined to be South 26°29´46.0" East 029°59´04.0" at an elevation of about 5 800ft.

Aerodrome Location	Ermelo, Mpumalanga Province	
Aerodrome Co-ordinates	S26°29´46.0" E029°59´04.0"	
Aerodrome Elevation	5 800 feet AMSL	
Runway Dimensions	1 400 x 23m	
Runway Designations	13/31	No other runway
Runway Used	None	
Runway Surface	Asphalt	
Aerodrome Status	Licensed	
Approach Facilities	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. Evidence at the accident site showed that the aircraft was flying low in a northerly direction when it impacted the ground with the right-wing tip at FAEO. The estimated aircraft trajectory was 18° magnetic. Evidence revealed that the aircraft's nose pitched down and the propeller blades struck the ground. The main landing gears broke off and the chemical spray boom shattered. The aircraft kept momentum whilst swerving to the right before it impacted the northern side of the FAEO perimeter fence. The aircraft's wings had separated from its attachment points during the accident sequence.

1.12.2. The aircraft came to a stop approximately 45m from the first point of impact beyond the airfield's perimeter fence; it faced the direction from which it had approached. The engine had separated from the airframe/fire wall and the chemical hopper had separated from the aircraft's nose section. The propeller was located approximately 11m forward of the first impact point. Most of the aircraft's structure was consumed by post-impact fuel-fed fire that erupted.

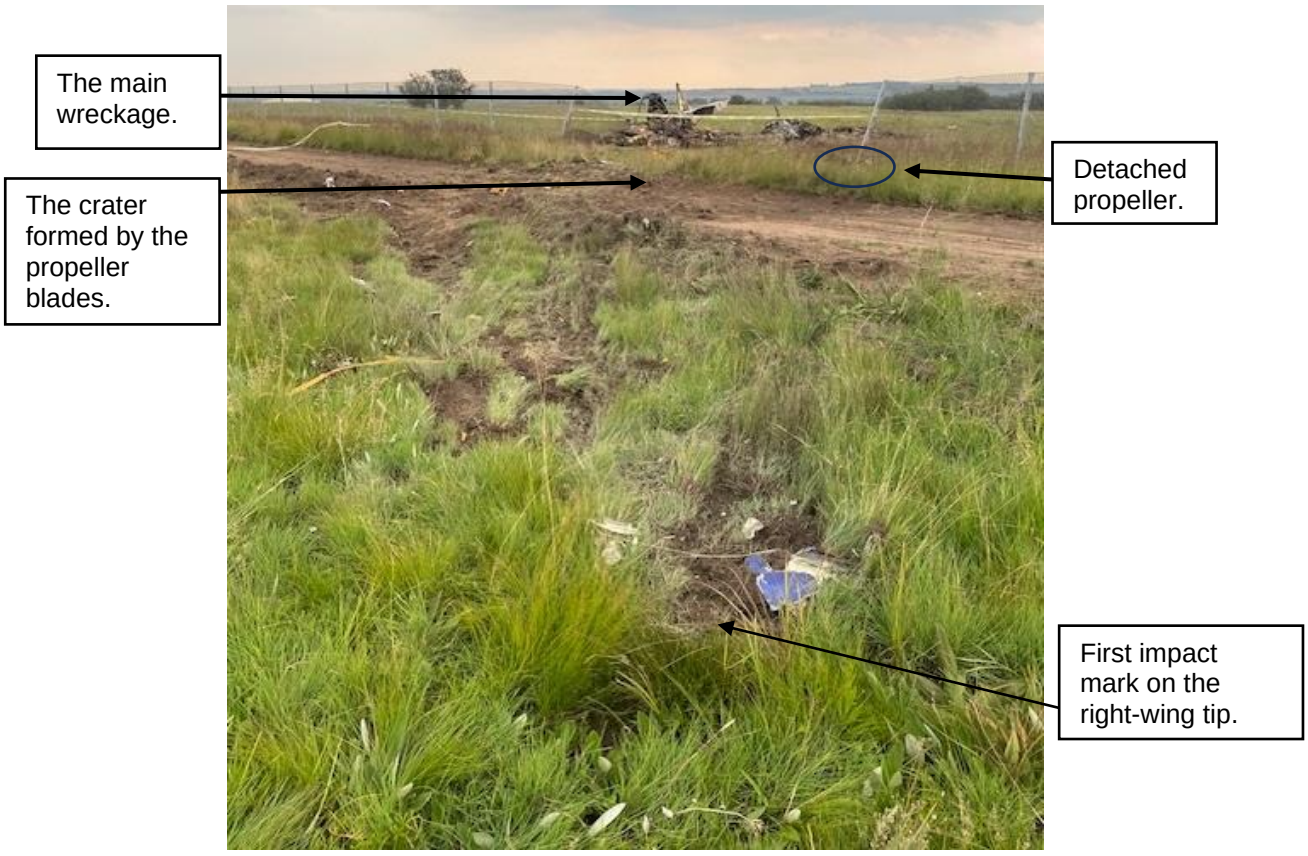

Figure 8: The wreckage and the broken skids landing gear.

Figure 9: The wreckage facing the direction from which it had approached (south).

Figure 10: The left wing, engine and chemical hopper.

Figure 11: The right wing that was destroyed by the fire.

1.12.3 The cockpit area was destroyed by the fire, and the pilot's mobile phone was not found. The pilot seat's rear structure/tubing separated from its attachment points. The safety harnesses were consumed by the fire; evidence showed that the pilot's harness clip was in a locked position. The instrument panel detached and most of the instruments, including the pressure altimeter subscale (QNH), provided unreliable information.

1.12.4 Most of the aircraft circuit breakers (CBs) popped during the accident sequence. The power, fuel condition and the propeller levers were severely disrupted and, thus, could not provide reliable information. The fuel tanks ruptured on impact, and a smell of Jet A1 fuel was present at the site. No fuel samples were available for recovery and testing. The flaps were in a retracted position and examination of the horizontal stabiliser showed that it was in the neutral position. The overall examination of the wreckage showed that the aircraft was intact before the accident. The control lever of the fuel control unit (FCU) snapped due to impact forces, and the aircraft's flight control cables were also disrupted; they were consumed by the fire. Pre-accident control integrity was established.

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 Accident and Incident Investigations Division (AIID) will reopen the investigation.

1.14. Fire

1.14.1 Post-impact fuel-fed fire erupted which consumed the aircraft.

1.15. Survival Aspects

1.15.1 The accident was considered not survivable due to impact forces. The post-impact fuel-fed fire that erupted compromised the structural integrity of the cockpit and the cabin area of the aircraft, which resulted in a fatality.

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

1.16. Tests and Research

1.16.1 Examination of the wreckage at the accident site by the investigation team indicated that the aircraft was intact prior to the flight. No evidence of pre-existing system faults was identified during the on-site examination of the wreckage. A pre-flight inspection conducted by the pilot indicated no faults, and the aircraft was assessed by the pilot as airworthy.

1.16.2 The propeller was found to have separated from the hub. The reduction gearbox had also separated from the engine. One propeller blade tip broke off during the accident sequence, an indication that the engine was producing a substantial amount of power on impact. The amount of power produced could not be determined.

Figures 12 and 13: The propeller that separated from the hub (left); and the blade tip that broke off from one of the blades (right).

1.17. Organisational and Management Information

1.17.1 This was a private (ferry) flight that was conducted under the provisions of Part 91 of the CAR 2011 as amended.

1.17.2 The aircraft maintenance organisation (AMO) that conducted the last MPI on the aircraft had an approval certificate that was issued by the SACAA on 5 September 2023 with an expiry date of 31 August 2024.

1.17.3 The AMO had Category A, B, C, W and X ratings listed on the approval certificate.

1.17.4 The aircraft was issued a Certificate of Release to Service (CRS) on 12 January 2024 with an expiry date of 11 January 2025 or at 12 061.3, whichever occurs first.

1.18. Additional Information

1.18.1. 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.

1.18.2 VMC to IMC (FAA Airplane Flying Handbook, Chapter 4)

Unfortunately, accident reports indicate that continued VFR flight from visual meteorological conditions (VMC) into marginal VMC or instrument meteorological conditions (IMC) is a factor contributing to loss of control in-flight (LOC I). A loss of the natural horizon substantially increases the chances of encountering vertigo or spatial disorientation, which can lead to upset.

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

The Pilot

2.2.1 The pilot was initially issued a Commercial Pilot Licence (CPL) on 11 May 2004. The CPL was reissued on 11 January 2023 with an expiry date of 31 December 2024. The pilot had the aircraft type (Ayres S2R-T34 - turbine) endorsed on his licence. He was issued a Class 1 aviation medical certificate on 17 October 2023 with an expiry date of 30 April 2024 with a restriction to wear suitable corrective lenses. His file at the SACAA facility showed that he had no significant medical condition/s. The pilot had both the night and agricultural pilot ratings endorsement on his licence, however, the aircraft was not equipped with IFR instruments such as the attitude indicator (AI).

Weather

2.2.2 The weather information obtained from the South African Weather Service (SAWS) on 27 January 2024 indicated a bank of thick Stratus (fog) Clouds over the eastern and central Mpumalanga Highveld areas; this meant that visibility was limited around the time (0600Z) of the accident in Ermelo Airfield (FAEO).

The Aircraft

2.2.3 Post-accident examination of the technical records indicated that the last 100-hour mandatory periodic inspection (MPI) that was conducted on the aircraft prior to the accident flight was certified on 12 January 2024 at 11 961.3 total airframe hours. The accident occurred at 11 962.3 airframe hours which indicated that it was operated for 1 hour since the last MPI. The AMO that conducted the last MPI on the aircraft had an approval certificate that was issued by the SACAA on 5 September 2023 with an expiry date of 31 August 2024. All the entries in the aircraft technical records were found to have been properly certified. Technical records indicated that the aircraft was certified and maintained IAW the existing regulations and maintenance programme. Examination of the wreckage indicated that the engine was producing a substantial amount of power at the time of the accident.

Conclusion

2.2.4 The aircraft was en route from FABM to FAKN for the pilot to clear customs before proceeding to FWCL in Blantyre, Malawi, where the operator was contracted to provide aerial application services. The forecasted weather by the SAWS indicated a thick or dense fog over eastern and central Mpumalanga province, which included the aircraft's flight path. The aircraft entered instruments meteorological conditions (IMC), and the pilot was not qualified to fly in this condition because he was not IFR rated. The pilot seemed to have realised that the aircraft was in the vicinity of the general flying area of FAEO and had descended to clear the

fog to get a visual of the runway The pilot seemed to have spotted the runway at the last moment whilst heading in a northerly direction at which point the aircraft had already flown past the runway. Witness marks at the accident site showed that the aircraft was in a right bank at low altitude and at high speed after flying over the runway, which resulted in the right-wing tip impacting the ground and, thus, the crash (controlled flight into terrain (CFIT).

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 was initially issued a Commercial Pilot Licence (CPL) on 11 May 2004. The pilot's CPL was reissued on 11 January 2023 with an expiry date of 31 December 2024. The pilot had the appropriate licence and VFR ratings in accordance with the existing regulations.

3.2.2 The pilot was issued a Class 1 aviation medical certificate on 17 October 2023 with an expiry date of 30 April 2024.

3.2.3 The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 91 of the CAR 2011 as amended. According to the weather report, visibility was zero due to the fog in the area at the time of the accident.

3.2.4 The aircraft was issued the Certificate of Registration (C of R) on 18 May 2005.

3.2.5 The aircraft was issued the Certificate of Airworthiness (C of A) on 29 September 2023 with an expiry date of 31 October 2024.

3.2.6 The last 100-hour MPI that was conducted on the aircraft prior to the accident flight was certified on 12 January 2024 at 11 961.3 airframe hours. The accident occurred at 11 962.3 estimated hours, which meant that the aircraft accrued 1.00 hours since the MPI inspection.

3.2.7 The aircraft was issued the Certificate of Release to Service (CRS) on 12 January 2024 with an expiry date of 11 January 2025 or at 12 061.3 airframe hours, whichever occurs first.

3.2.8 The AMO which conducted the last MPI on the aircraft had an approval certificate that was issued on 5 September 2023 with an expiry date of 31 August 2024.

3.2.9 The SAWS forecasted a thick fog over eastern and central Mpumalanga province which was the route of the aircraft's flight path. It is not known if the pilot had considered the en route weather reports prior to departing FABM.

3.2.10 The aircraft was operated in severe weather conditions (thick fog), and the pilot was not IFR rated. Whilst in a descent to have visual of the runway, he banked the aircraft to the right, consequently, the right-wing tip impacted the ground which resulted in a crash or CFIT.

3.3. Probable Cause/s

3.3.1 The pilot lost situational awareness whilst flying the aircraft at high speed and at low height in IMC without an IFR rating; this resulted in the right-wing tip impacting the ground (CFIT).

3.4 Probable Cause/s

3.4.1 Improper 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 Message

4.2.1 It is critical for pilots to ensure that they obtain weather reports for the departure area/airport, en route and destination area/airport as part of their pre-flight planning to make an informed decision whether to undertake or abort a flight due to unfavourable (bad) weather conditions.

5 APPENDICES

5.1 None.

This report is issued by:

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