AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:		**CA18/2/3/10589**	
Aircraft Registration	ZS-KFB	**Date of Accident**		08 June 2025		**Time of Accident**	Unknown
Type of Aircraft	Piper 28-181 Archer II			**Type of Operation**		Private (Part 91)	
Pilot-in-command Licence Type	Private Pilot Licence (PPL)			**Age**	22	Licence Valid	Yes
Pilot-in-command Flying Experience		**Total Flying Hours**		94.3		**Hours on Type**	88.3
Last Point of Departure	Virginia Aerodrome (FAVG), KwaZulu-Natal Province						
Next Point of Intended Landing	Ladysmith Aerodrome (FALY), KwaZulu-Natal Province						
Damage to Aircraft	Destroyed						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Approximately 3.6 nautical miles (nm) north-east of Hylton in KwaZulu-Natal Province (GPS position 29°12'07.2" South 030°22'32.4" East)							
Meteorological Information	Wind direction: 240˚ at 07 kts; visibility: 5000m; temperature: 14˚C; dew point: 10˚C; QNH: 1016 hPa						
Number of People On-board	1+2	**Number of People Injured**	0	**Number of People Killed**	3	**Other (On Ground)**	0

Synopsis

On Sunday, 8 June 2025, a pilot and two passengers on-board a Piper PA-28-181 Archer II aircraft with registration ZS-KFB took off on a private flight from Virginia Aerodrome (FAVG) in KwaZulu-Natal province to Wonderboom Aerodrome (FAWB) in Gauteng province. The ZS-KFB was one of three aircraft (ZS-EIL and ZS-CZU) that were to fly through Richards Bay Aerodrome (FARB) and, thereafter, proceed to Ladysmith Aerodrome (FALY) to land and refuel before proceeding to FAWB for a full-stop landing. The ZS-KFB occupants had also planned to drop off a (one) passenger at FALY.

After the three aircraft were refuelled to capacity at FAVG; the pilots took off and flew in a loose formation along the coast to FARB as per the filed flight plan and, thereafter, to FALY. The flight to FARB was uneventful. Whilst en route to FALY, they (pilots) realised that they might arrive after the official sunset. *FALY is not equipped with night facilities or runway lights*. Upon their arrival at FALY, the ZS-EIL pilot suggested that ZS-KFB and ZS-CZU land first; however, the pilots were unable to land on Runway 29 after two attempts. The ZS-EIL landed safely at FALY. With approximately two hours of fuel remaining, the two aircraft (ZS-KFB and ZS-CZU) diverted to Greytown (FAGY); en route, they lost communication and visual of each other. At 1648Z, the ZS-CZU pilot, through his mobile phone, texted (WhatsApp) the crew of ZS-EIL, stating that they had experienced inclement weather and that they had crashed approximately 2 nautical miles (nm) from FAGY. They further stated that they had lost communication with ZS-KFB.

The ZS-EIL crew reported ZS-KFB missing, and a search and rescue mission was initiated. The wreckage of ZS-KFB was found on 9 June 2025; the three occupants were fatally injured.

Probable Cause			
Loss of control due to spatial disorientation following a loss of external references whilst operating the aircraft in instrument meteorological conditions (IMC). **Contributory Factors** Improper flight planning and contravention of regulations pertaining to the privileges of a pilot licence.			
SRP Date	10 February 2026	Publication Date	11 February 2026

Occurrence Details

Reference Number	**:** CA18/2/3/10589
Occurrence Category	**:** Category 1 (Accident)
Type of Operation	**:** Private (Part 91)
Name of Owner	**:** T. R. Eagle Air
Aircraft Registration	**:** ZS-KFB
Aircraft Make and Model	**:** Piper 28-181 Acher II
Nationality	**:** South African
Place	**:** Hylton, KwaZulu-Natal Province
Date and time	**:** 08 June 2025 (time unknown)
Injuries	**:** Three Fatalities
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 happened on 8 June 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. Notifications were sent to the State of Manufacturer in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. The State did not appoint an accredited representative and/or advisor. The investigators were dispatched to the accident site.

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Accident — this investigated accident
   Aircraft — the Piper 28-181 Archer 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
AIID	Accident and Incident Investigations Division
AIP	Aeronautical Information Publication
ASI	Airspeed Indicator
ATC	Air Traffic Control
ARCC	Aeronautical Rescue Co-ordination Centre
ATPL	Airline Transport Pilot Licence
BKN	Broken (6/8 cloud cover)
C of R	Certificate of Registration
CRS	Certificate of Release to Service
FAGY	Greytown Aerodrome
FALY	Ladysmith Aerodrome
FAPM	Pietermaritzburg Aerodrome
FARB	Richards Bay Aerodrome
FSTD	Flight Simulation Training Device
Ft	Feet
hPa	Hectopascal
Kt	Knots
NM	Nautical Miles
M	Metres
METAR	Meteorological Aerodrome Report
MPH	Miles per Hour
PAPI	Precision Approach Path Indicator
RWY	Runway
SACAA	South African Civil Aviation Authority
SAPS	South African Police Services
SASAR	South African Search and Rescue
SAWS	South African Weather Service
SCT	Scattered
SIGMET	Significant Meteorological Information
TAF	Terminal Aerodrome Forecast
UTC	Co-ordinated Universal Time
VOR	VHF Omnidirectional Range
QNH	Barometric pressure adjusted to Mean Sea Level
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

1.1.1. On Saturday, 7 June 2025, three Piper PA-28-181 Archer II aircraft with registrations ZS-EIL, ZS-CZU and ZS-KFB took off on private flights (hire-and-fly) from Wonderboom Aerodrome (FAWB) in Gauteng province to Ladysmith Aerodrome (FALY) in KwaZulu-Natal province where they landed safely and uplifted fuel. All three aircraft were refuelled to capacity at FALY. The ZS-KFB collected a passenger. Thereafter, all three aircraft took off and routed via Richards Bay Aerodrome (FARB) and turned right towards the coast; they made a full-stop landing at Virginia Aerodrome (FAVG). *FARB and FAVG are situated in KwaZulu-Natal province*. The flights were conducted under visual meteorological conditions (VMC) and under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011, as amended.

1.1.2. On Sunday, 8 June 2025, the pilots stated that they could not fly earlier in the day, citing strong winds. Instead, they spent the day at the beachfront. Later, they filed visual flight rules (VFR) flight plans with Air Traffic and Navigation Services (ATNS); their route was coast-wise northerly, overhead FARB and direct to FALY for refuelling (and for ZS-KFB to drop-off the passenger). The pilots had planned Ulundi Aerodrome (FAUL) as their first alternate, and Greytown Aerodrome (FAGY) as their second. *The surviving pilots of the other two aircraft (ZS-EIL and* ZS-CZU) *admitted during an interview held at the SACAA offices that they did not check the official weather with the South African Weather Service (SAWS) but rather used an application (App) on their cellular phone which was not detailed. They also did not check Notice to Airmen (Notams) to find out which was a suitable aerodrome for night operations. Furthermore, they did not know about the restrictions at FAGY but still chose it as an alternate aerodrome. The pilot of ZS-EIL stated that they received reports of an aircraft orbiting FAGY around 1830Z, which they thought was ZS-KFB.*

1.1.3. The pilots had planned to fly in loose formation. The ZS-EIL aircraft took off first at 1328Z, and ZS-KFB was the last to depart at 1334Z. The total planned elapsed time was approximately 2 hours and 30 minutes (02h:30mins) with a fuel endurance of 5 hours. En route, the pilots of ZS-EIL stated that they had discussed among themselves (pilots of the aircraft) that daylight would end at 1511Z, and that they might not be able to land at FALY, which would imply that they would need to divert to one of the selected alternate aerodromes.

1.1.4. They also discussed diversion plans which included Pietermaritzburg Airport (FAPM) and FAGY before deciding to increase their speed to reach FALY. Upon their arrival at FALY, the ZS-EIL crew suggested that ZS-KFB land first, followed by ZS-CZU. On final approach for Runway 29, ZS-KFB conducted a go-around, stating that they were too high and fast. The ZS-CZU also completed a go-around and cited the same challenge as ZS-KFB. The pilot of

ZS-EIL managed to land the aircraft safely FALY. The other two aircraft still could not land at FALY on their second attempt. By this time, it was already dark, and they lost sight of the runway which was not equipped with lights. The ZS-KFB and ZS-CZU pilots remained in the circuit at FALY to discuss their options. The local flying school manager who aided with refuelling at FALY advised the pilots that FAGY is a private aerodrome and that, perhaps, they should try FAPM.

1.1.5. The ZS-EIL pilots stated that at 1645Z, they received a WhatsApp (text) message from the ZS-CZU crew who informed them that “the weather was really bad”. At 1648Z, the pilot of ZS-CZU called the ZS-EIL crew to inform them that they had crashed north of FAGY. Thereafter, the ZS-EIL crew notified the owner of the three aircraft that ZS-CZU had crashed and that they cannot establish contact with ZS-KFB. They further stated that the aircraft pilots estimated they had about 2 hours of fuel endurance remaining when they departed from FALY, and that the weather en route to FAGY was not conducive for flying.

1.1.6. According to the ZS-CZU crew, they opted to divert to either FAUL or FAGY as per their flight plan; however, due to fuel constraint, they decided on FAGY. They also stated that they lost contact and visual of ZS-KFB a few minutes after departing from FALY. The ZS-CZU pilot tried to call and send WhatsApp messages to the ZS-KFB pilot but did not receive a reply. The ZS-CZU crew stated that Johannesburg Information personnel communicated to them that they had informed ZS-KFB crew about the instrument meteorological conditions (IMC) at FAPM, and that they had decided to route to FAGY. The pilots were tuned in on the very high frequency (VHF) 129.10-Megahertz (MHz) to communicate with Johannesburg Information. The ZS-CZU crew tried to establish communication with ZS-KFB on different frequencies but without success. When ZS-CZU approached FAGY, the pilot had no ground visibility. The ZS-CZU pilot initiated a “controlled crash” at 1630Z. They had 50 minutes of fuel endurance remaining at the time of the crash. The second pilot on-board sustained minor injuries.

1.1.7. The Aeronautical Rescue Co-ordination Centre (ARCC) received an alert at 1731Z that the ZS-KFB aircraft had not landed at FAGY and that the two aircraft (they were in formation with) had lost visual and communication with the aircraft. Several Search and Rescue (SAR) units were also deployed. At 0948Z on 9 June 2025, the South African Police Service (SAPS SAR) unit received a tip-off about a potential accident sighting. At 1019Z, the SAPS SAR personnel confirmed that the wreckage of ZS-KFB was located approximately 3.6 nautical miles (nm) north-east of Hylton (KwaZulu-Natal), and that all three occupants had sustained fatal injuries.

1.1.8. The accident occurred at night, approximately 3.6 nautical miles (nm) north-east of Hylton in KwaZulu-Natal province at Global Positioning System (GPS) co-ordinates determined to be 29°12'07.2" South 030°22'32.4" East, at a field elevation of 4 396 feet (ft).

1.2. Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	1	-	2	3	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	-	-	-	-	-
Total	**1**	**-**	**2**	3	**-**

Note: Other means people on the ground.

1.2.1. The three occupants sustained fatal injuries.

1.3. Damage to Aircraft

1.3.1. The aircraft was destroyed.

Figure 1: The wreckage of ZS-KFB in an inverted position at the accident site.

1.4. Other Damage

1.4.1. None.

1.5. Personnel Information

Nationality	South African	Gender	Male	Age	22
Licence Type	PPL				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Night rating				
Medical Expiry Date	31 March 2028				
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	94.3
Total Past 24 Hours	5
Total Past 7 Days	10
Total Past 90 Days	15.3
Total on Type Past 90 Days	15.3
Total on Type	88.3

1.5.1. The pilot had a Private Pilot Licence (PPL) that was initially issued on 1 July 2024 with an expiry date of 30 June 2025. The pilot also had a night-rating that was issued on 30 August 2024.

1.5.2. According to the pilot's logbook, the pilot had actual instrument training of 6.9 hours and 5 hours of flight simulation training device (FSTD).

1.5.3. The first passenger on-board was a student pilot (SP) who had completed the initial solo flight on a Cessna 172 aircraft on 29 May 2025. She had accumulated approximately 42.5 hours total flight time. She had no training on a PA-28-181 Archer II aircraft and did not receive authorisation to fly the accident aircraft.

1.6. Aircraft Information

1.6.1. Piper PA-28-180 (Source: www.globalair.com)

The Piper PA-28-180 is a four-seat light aircraft built by the Piper Aircraft Corporation and designed for flight training, air taxi and personal use. The PA-28 family of aircraft comprises all-metal, unpressurised, single piston-engine aeroplanes with low-mounted wings and fixed tricycle landing gear. They have a single door on the right side, with the wing used as a step to board the aircraft.

Airframe:

Manufacturer/Model	Piper Aircraft/PA-28-181 Archer II	
Serial Number	28-7890487	
Year of Manufacture	1978	
Total Airframe Hours (At Time of Accident)	7 699.85	
Last Inspection (Date & Hours)	26 May 2025	7 632.57
Hours Since Last Inspection	67.28	
CRS Issue Date	26 May 2025	
C of A (Issue Date & Expiry Date)	4 August 2021	31 August 2025
C of R (Issue Date) (Present Owner)	17 June 2021 / T. R Eagle Air	
Type of Fuel Used	Avgas 100LL	
Operating Category	Part 91	
Previous Accidents	On 20 September 2023, a SP on-board the aircraft stated that he was trying to maintain the correct speed and attitude when he noticed the presence of wind whilst on final approach. The aircraft touched down hard with its nose gear and bounced. The student pilot applied back pressure on the control column, but the aircraft bounced twice more before it stopped on the runway. The nose oleo was bent, and the wheel separated. The propeller blades and the tail also struck the runway during the occurrence. AIID file number CA18/2/3/10366	

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

Engine:

Manufacturer/Model	Lycoming / O-360-A4M
Serial Number	L-26602-36A
Part Number	4460
Hours Since New	5 689.22
Hours Since Overhaul	1 306.32

Propeller:

Manufacturer/Model	Sensenich/Unknown
Serial Number	107749K & 32610K
Part Number	76EMS5-0-60
Hours Since New	301.05
Hours Since Overhaul	N/A

1.6.2. On 8 June 2025, the aircraft was refuelled with 61 litres (L) of Avgas 100LL, which brought the total amount on-board to 181L, equivalent to 5 hours endurance.

1.6.3. According to the ZS-CZU crew, it was estimated that ZS-KFB had 2 hours of fuel endurance remaining as they diverted from FALY.

1.7. Meteorological Information

1.7.1. The official accident weather report was sourced from the SAWS weather data at/or in the vicinity of the aircraft accident and closest to the approximated time of accident. FAPM Terminal Aerodrome forecast (TAF) that was issued on 8 June 2025 at 0900Z and valid from 1000Z to 2100Z was used. FAPM is 29 nautical miles (nm) from the accident site.

Wind Direction	240°	Wind Speed	07kt	Visibility	5000m
Temperature	14°C	Cloud Cover	Broken	Cloud Base	300 - 1500ft
Dew Point	10°C	QNH	1016hPa		

1.7.2. TAF is a specialised weather forecast specifically for airports, providing a detailed prediction of expected meteorological conditions that significantly affect aircraft movement over a set period, typically 24 or 30 hours.

Figure 2: Metar on the day of the accident. (Source SAWS)

1.7.3. *There was expected change in clouds becoming broken at 1500ft above ground level. The probability of thundershowers with cumulonimbus cloud at 3000ft and broken low-level cloud at 300ft above ground level were expected to reduce visibility to 5000m between 1800Z and 2100Z during the (approximated) time of accident.*

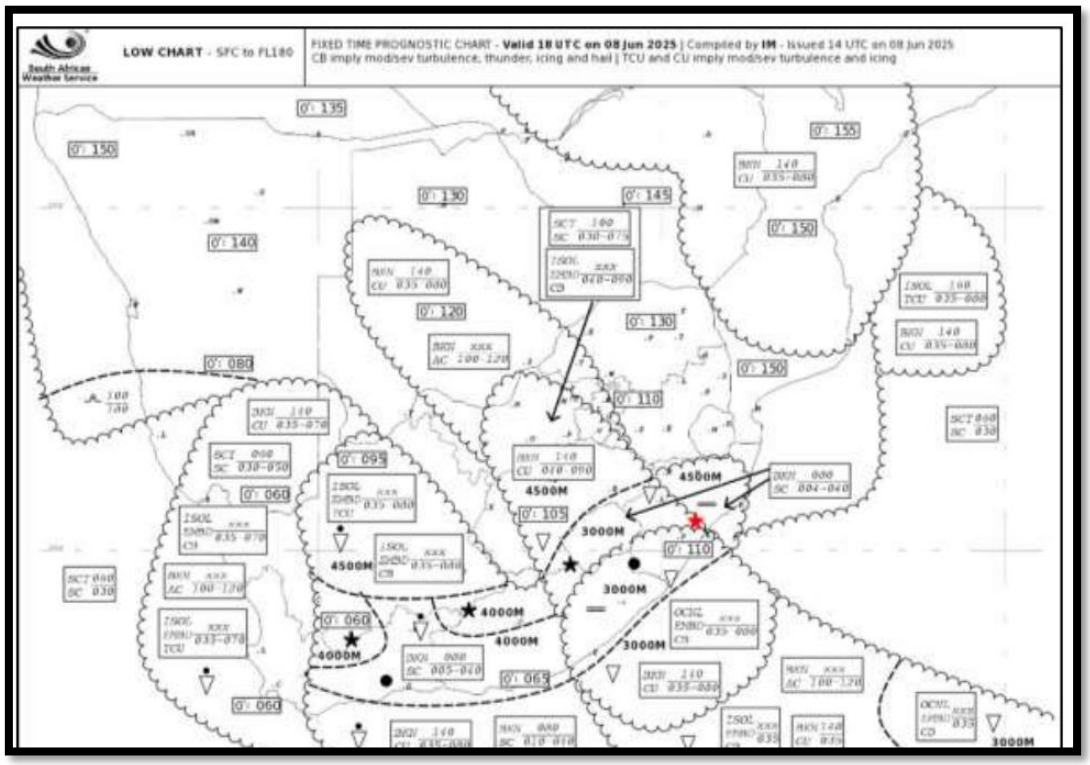


Figure 3: Low-level Significant Meteorological Information. (Source: SAWS)

1.7.4. *The low-level Significant Weather (SigWx) charts that were issued at 1400Z and valid for 1800Z on 8 June 2025, forecasted low-level cloud with reduced visibility in mist (see Figure 3). The forecast also showed embedded cumulonimbus clouds where visibility was expected to reduce to 3000M in thundershowers. The area of the accident is approximated with a red star.*

1.7.5. Issued V-warning

There was a Significant Meteorological Information (SIGMET) warning of EMBEDDED thundershowers (TS) that was issued from 1400Z to 2000Z on 8 June 2025. Airman's Meteorological Information (AIRMET) warning for low cloud, surface visibility and cumulonimbus cloud was issued from 1400Z to 2000Z on 8 June 2025.

1.7.6. AIRMET is an aviation weather advisory that warns pilots of potentially hazardous weather conditions that could affect the safety of lower-level aircraft.

1.7.7. A SIGMET is a weather advisory issued to warn pilots of potentially hazardous weather conditions during flight. These advisories cover a broad area and are more severe than AIRMETs, focusing on phenomena like severe turbulence, icing or volcanic ash. SIGMETs are crucial for ensuring flight safety by alerting pilots to potential dangers.

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

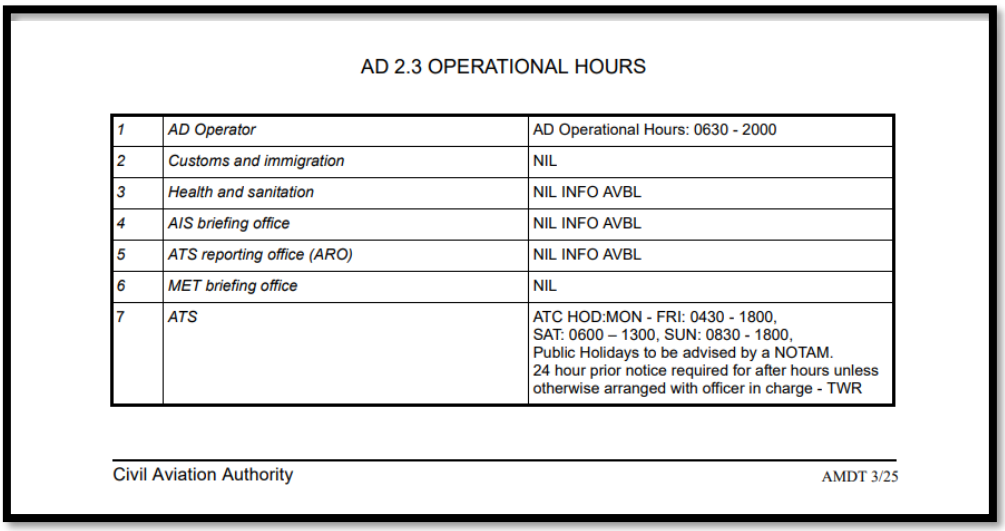
1.10.1. ZS-KFB crashed 12nm south-west of FAGY.

Aerodrome Name	Greytown Aerodrome (FAGY)
Aerodrome Location	KwaZulu-Natal Province
Aerodrome Status	Licensed
Aerodrome GPS coordinates	29°07'17.47" South, 030°35'14.12" East
Aerodrome Elevation	3 531ft
Runway Headings	06/24
Dimensions of Runway Used	1 462m x 11m
Heading of Runway Used	Not applicable
Surface of Runway Used	Asphalt
Approach Facilities	Runway lights, PAPI lights for Runway 24, DVOR/DME (GYV – 113.50 MHz),
Tower Frequency	123.50 MHz
NOTES	1. Prior permission required. 2. Instrument rating required for night operations. 3. Night operations are strictly prohibited except for specifically authorised pilots.

1.10.2. The pilot (flight instructor) on-board ZS-EIL who landed safely at FALY advised the pilots of ZS-CZU and ZS-KFB to divert to FAPM, which was 72nm from FALY. This aerodrome had all the required facilities, including a manned tower.

Aerodrome Name	Pietermaritzburg Aerodrome (FAPM)
Aerodrome Location	KwaZulu-Natal Province
Aerodrome Status	Licensed

Aerodrome GPS coordinates	29°38'48.44" South, 030°23'51.98" East
Aerodrome Elevation	2423 ft
Runway Headings	16/34
Dimensions of Runway Used	1 537 X 30m
Heading of Runway Used	Not Applicable
Surface of Runway Used	Asphalt
Approach Facilities	Runway lights, PAPI lights for both runways, VOR/DME (PMV – 117.90-MHz), RNP Approach Runway 16
Tower Frequency	122.0-MHz
NOTES	1. Straight-in visual approach Runway 16 is prohibited at night. 2. High concentration of birds alongside Runway 16/34.



AD 2.3 OPERATIONAL HOURS

1	*AD Operator*	AD Operational Hours: 0630 - 2000
2	*Customs and immigration*	NIL
3	*Health and sanitation*	NIL INFO AVBL
4	*AIS briefing office*	NIL INFO AVBL
5	*ATS reporting office (ARO)*	NIL INFO AVBL
6	*MET briefing office*	NIL
7	*ATS*	ATC HOD:MON - FRI: 0430 - 1800, SAT: 0600 – 1300, SUN: 0830 - 1800, Public Holidays to be advised by a NOTAM. 24 hour prior notice required for after hours unless otherwise arranged with officer in charge - TWR

Civil Aviation Authority AMDT 3/25

Figure 4: FAPM ATC hours of duty (Source: SACAA AIP)
FAPM ATC confirmed that on Sundays they work from 0830Z to 1800Z.

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 impact marks at the accident site indicated that the aircraft entered the gum tree forest in a steep angle and in a south heading, severing several tree-tops of different heights in its wake, before it stopped in an inverted attitude.

Figure 5: Exposed spar and a portion of the severed wing.

Figure 6: Tree tops showing impact signs (yellow arrow). **Figure 7**: Some of the tree stems that were flattened.

1.12.2. Upon arrival, two days after the accident, the investigation team noticed that the fuel tanks had ruptured during the accident sequence. No fuel odour was present due to persistent rain in the area. The debris was spread over an area larger than 20m x 65m. The wings had broken off from the fuselage due to impact with several trees. Damage to aircraft and the trees indicated blunt forces that were greater than their material strength. The left wing was found shattered (in pieces), and the leading-edge metal skin was pushed all the way to the spar. The landing gear was severed. The horizontal and vertical stabilisers were also severed from the airframe.

1.12.3. The cockpit area and the engine fire wall sustained substantial damage. The seats were found scattered; the cabin floor and instrument panel were unidentifiable; no instruments remained intact in the aircraft. The aircraft doors were found detached on both sides of the main wreckage. The engine was located a few metres from the main wreckage, it was inverted; the propeller blade tips coned backward.

1.12.4. The main wreckage (from the back of the cabin) rested against a tree in an inverted position. This indicated that the wings were not level when it crashed. The second wing (right) was found during recovery under a cluster of trees that were flattened by the aircraft; eight trees covered the second wing.

Figure 8: The inverted engine with the propeller blade tip that was severed.

1.13. Medical and Pathological Information

1.13.1. A post-mortem examination of the pilot was performed. The results of the post-mortem and the toxicology tests were not available at the time of completion of this report. The pilot was fatally injured during the accident sequence. Should the post-mortem examination results reveal a different cause of death, this information will be considered new and will necessitate the reopening of this investigation.

1.14. Fire

1.14.1. There was no post-impact fire.

1.15. Survival Aspects

1.15.1. The accident was considered not survivable due to the impact forces that compromised the structural integrity of the cockpit and cabin area of the aircraft, which resulted in fatal injuries.

1.16. Tests and Research

1.16.1. The propeller showed that the engine was producing substantial amount of power at the time of the accident.

1.17. Organisational and Management Information

1.17.1. The aircraft maintenance organisation (AMO) which conducted maintenance of the aircraft had an AMO Certificate that was issued by the Regulator on 3 June 2025 with an expiry date of 30 June 2026.

1.17.2. The training school had a valid Approved Training Organisation (ATO) Certificate that was issued by the Regulator on 25 November 2022 with an expiry date of 31 January 2028.

1.17.3. All three aircraft were hired (hire-and-fly) from a flight school at FAWB and were operated under the provisions of Part 91 (Private) of the CAR 2011.

1.18. Additional Information

1.18.1. The ZS-EIL crew departed from FALY (in the dark) after reporting to the authorities that the ZS-CZU aircraft had crashed and that the ZS-KFB aircraft had gone missing. The ZS-EIL pilots disregarded the provisions of the CAR Part 91.07.3 (2) which states: "*Except in an emergency, a pilot of an aeroplane shall not take-off or land by night, unless a place of take-off or landing is equipped with night flying facilities."*

1.18.2. A possible alternate aerodrome was New Castle Aerodrome (FANC) in KwaZulu-Natal province which is 50nm north of FALY. Unlike FAGY and FAUL, it does not have any special requirements, and it was situated away from the ensuing bad weather.

1.18.3. The Notam (FANC) below states that lighting facilities were unserviceable between the stated dates below.

(C2357/25 NOTAMR C2311/25
Q)FAJA/QFALN/IV/NBO/A/000/999/2746S02959E005
A)FANC B)2506031346 C)2506171000 EST
E)NIL NGT OPS PERMITTED DUE ALL LDG AREA LGT FAC U/S.)

Figure 9: Notam issued on 3 June 2025, valid until 17 June 2025. (Source: SACAA)

Aerodrome Name	New Castle (FANC)
Aerodrome Location	KwaZulu-Natal Province
Aerodrome Status	Licensed
Aerodrome GPS coordinates	27°46'22" South 029°58'35" East
Aerodrome Elevation	4091 ft
Runway Headings	11/29
Dimensions of Runway Used	1 400m x 23m
Heading of Runway Used	Not applicable
Surface of Runway Used	Asphalt
Approach Facilities	Runway lights, PAPI lights for Runway 11/29,
Tiba Frequency	124.8 MHz
NOTES	Remote Switching of RWY Lighting: 7 Clicks on microphone button during a five second period on 124,8 MHz switches RWY lights on.

1.18.4. *CAR Part 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.*

1.18.5. Spatial Disorientation and Illusions (Source: FAA-H-8083-25C**)**

Spatial disorientation specifically refers to the lack of orientation regarding the position, attitude, or movement of the airplane in space. The body uses three integrated systems that work together to ascertain orientation and movement in space.

- *Vestibular system—organs found in the inner ear that sense position by the way we are balanced*
- *Somatosensory system—nerves in the skin, muscles, and joints that, along with hearing, sense position based on gravity, feeling, and sound*

• *Visual system—eyes, which sense position based on what is seen*

All this information comes together in the brain and, most of the time, the three streams of information agree, giving a clear idea of where and how the body is moving. Flying can sometimes cause these systems to supply conflicting information to the brain, which can lead to disorientation. During flight in visual meteorological conditions (VMC), the eyes are the major orientation source and usually prevail over false sensations from other sensory systems. When these visual cues are removed, as they are in instrument meteorological conditions (IMC), false sensations can cause a pilot to quickly become disoriented.

The vestibular system in the inner ear allows the pilot to sense movement and determine orientation in the surrounding environment. In both the left and right inner ear, three semicircular canals are positioned at approximate right angles to each other. Each canal is filled with fluid and has a section full of fine hair. Acceleration of the inner ear in any direction causes the tiny hairs to deflect, which in turn stimulates nerve impulses, sending messages to the brain. The vestibular nerve transmits the impulses from the utricle, saccule, and semicircular canals to the brain to interpret motion.

The somatosensory system sends signals from the skin, joints, and muscles to the brain that are interpreted in relation to the Earth's gravitational pull. These signals determine posture. Inputs from each movement update the body's position to the brain on a constant basis. "Seat of the pants" flying is largely dependent upon these signals. Used in conjunction with visual and vestibular clues, these sensations can be fairly reliable. However, the body cannot distinguish between acceleration forces due to gravity and those resulting from maneuvering the aircraft, which can lead to sensory illusions and false impressions of an aircraft's orientation and movement. Under normal flight conditions, when there is a visual reference to the horizon and ground, the sensory system in the inner ear helps to identify the pitch, roll, and yaw movements of the aircraft. When visual contact with the horizon is lost, the vestibular system becomes unreliable. Without visual references outside the aircraft, there are many situations in which combinations of normal motions and forces create convincing illusions that are difficult to overcome.

Prevention is usually the best remedy for spatial disorientation. Unless a pilot has many hours of training in instrument flight, flight should be avoided in reduced visibility or at night when the horizon is not visible. A pilot can reduce susceptibility to disorienting illusions through training and awareness and learning to rely totally on flight instruments.

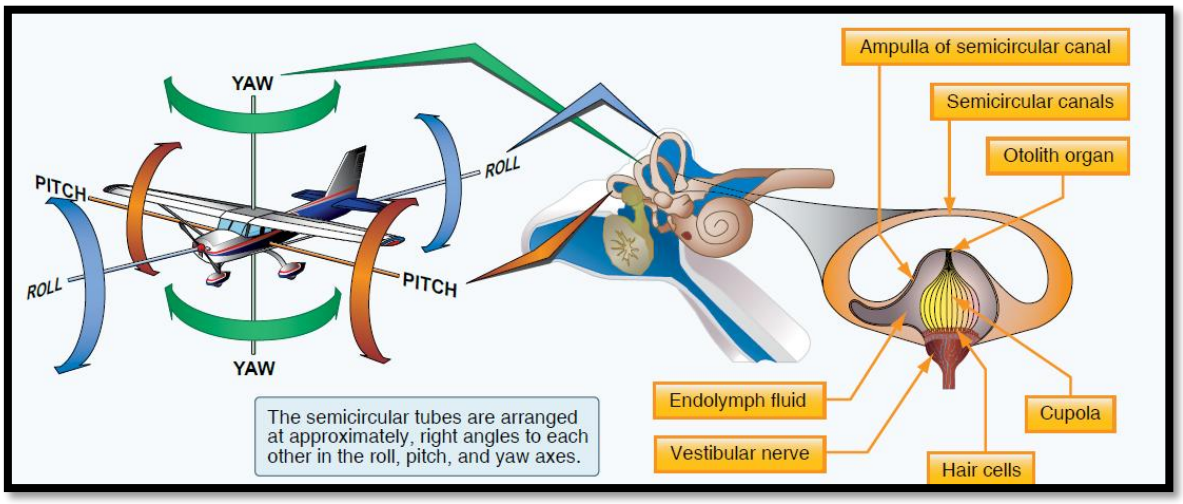


Figure 10: The semicircular canals lie in three planes and sense motions of roll, pitch and yaw. (Source: FAA-H-8083-25C)

1.18.6 Graveyard Spiral (Source: FAA-H-8083-25C**)**

As in other illusions, a pilot in a prolonged, coordinated, constant-rate turn may experience the illusion of not turning. During the recovery to level flight, the pilot will then experience the sensation of turning in the opposite direction causing the disoriented pilot to return the aircraft to its original turn. Because an aircraft tends to lose altitude in turns unless the pilot compensates for the loss in lift, the pilot may notice a loss of altitude. The absence of any sensation of turning creates the illusion of being in a level descent. The pilot may pull back on the controls in an attempt to climb or stop the descent. This action tightens the spiral and increases the loss of altitude; this illusion is referred to as a "graveyard spiral." This may lead to a loss of aircraft control.

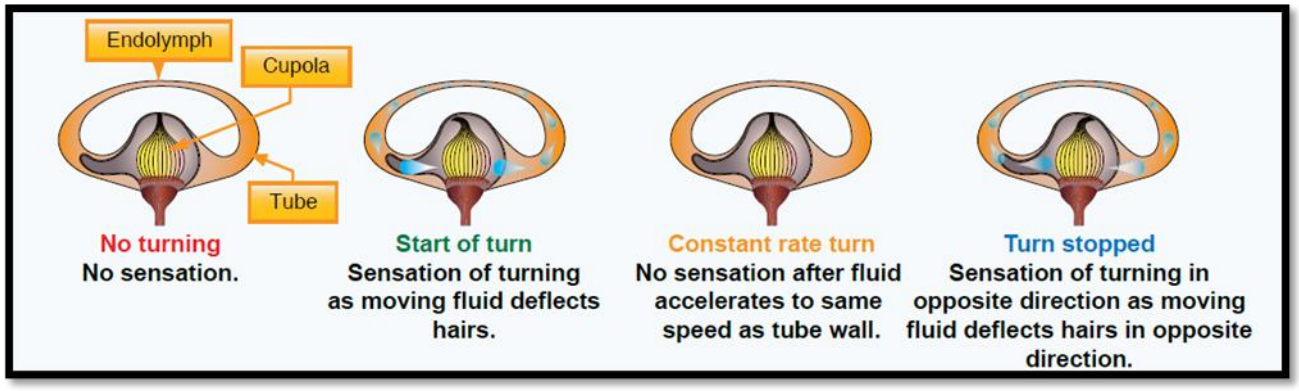


Figure 11: Human sensation of angular acceleration. (Source: FAA-H-8083-25C)

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

2.2.1. The pilot had a Private Pilot Licence (PPL) with night rating endorsed on it. His medical certificate was valid. One of the two (2) passengers was qualified to fly solo on a Cessna 172 aircraft and was pursuing a PPL.

2.2.2 The aircraft was properly registered and was airworthy at the time of the flight. According to available information, all three aircraft dispatched with full tanks of Avgas.

2.2.3 The three aircraft filed flight plans from FAVG to FAWB indicating that their flight estimated elapsed time (EET) was 04 hours and 30 minutes with search and rescue (SAR) normal; however, they knew that they had a passenger on ZS-KFB and that they would drop off the passenger and refuel before proceeding to FAWB. They filed FANC as their only alternate aerodrome which was 50nm north of FALY. FANC was suitable during the day but was not a suitable alternate for night flying as there was a Notam that was issued which indicated that lighting facilities were unserviceable from 03 to 17 June 2025. The only suitable alternate was FAPM if the weather was not below VFR minimums or if the pilot-in-command (PIC) had instrument rating. FAGY and FAUL both required instrument-rated pilots as a condition of landing at night.

Route Planning and Weather

2.2.4 During interviews with pilots of ZS-EIL and ZS-CZU, they stated that they did not attempt to source reliable weather forecast from SAWS to figure out where and when would the weather conditions be a concern to them. During the interviews, the investigation team presented to them what the terminal area forecast (TAF) of the area of flight was, and they seemed shocked to realise the severity of the weather at that time. Had they acquired the information presented to them (pilots), they would have realised that it was imperative to revise their estimated time of arrival (ETA) at FAGY not to be later than 1725Z (end of daylight). To land before that time, they should have planned for not later than 1300Z or earlier departure.

2.2.5 At approximately 1745Z, the pilots of ZS-KFB and ZS-CZU had failed to land at FALY; they circled around the aerodrome discussing with ZS-EIL crew where they should divert to as it was dark and their fuel level reduced. They all agreed that they should divert to FAGY or FAPM; they ruled out FAUL because it was far (92 nm) and had the instrument rating

requirement. Aerodrome personnel at FALY also advised them that FAGY must be contacted before landing and instrument rating is a requirement for landing at night. The two aircraft started the diversion towards FAGY and FAPM but lost sight and communication of each other en route. The surviving pilots stated that there were reports of an aircraft circling at FAGY, and that it was cloudy.

Conclusion

2.2.6 The investigation determined that the accident was due to a loss of control caused by spatial disorientation following a loss of external references whilst operating the aircraft in instrument meteorological conditions (IMC).

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 Private Pilot Licence (PPL) that was initially issued on 1 July 2024 with an expiry date of 30 June 2025. The pilot also had a night rating.

3.2.2. The pilot had a Class 2 aviation medical certificate that was issued on 15 March 2023 with an expiry date of 31 March 2028.

3.2.3. One of the occupants on-board was a student pilot with a valid medical certificate.

3.2.4. The last maintenance inspection of the aircraft was conducted and certified on 23 May 2025 at 7632.85 airframe hours by an approved aircraft maintenance organisation (AMO). The aircraft had accrued 67.28 hours since the said maintenance inspection.

3.2.5. The aircraft had a Certificate of Airworthiness (C of A) that was issued on 4 August 2021. The latest C of A had an expiry date of 31 August 2025.

3.2.6. The Certificate of Registration (C of R) was issued to the present owner on 16 June 2021.

3.2.7. The Certificate of Release to Service (CRS) was issued on 25 May 2025 with an expiry date of 26 May 2026 or at 7732.57 airframe hours, whichever comes first.

3.2.8. The aircraft maintenance organisation (AMO) which maintained the aircraft had an AMO Certificate that was issued by the Regulator on 3 June 2025 with an expiry date of 30 June 2026.

3.2.9. The three aircraft flew in loose formation from FAVG via FARB with the intention to land and refuel at FALY before sunset on the day of the accident, but ZS-CZU and ZS-KFB failed to land due to darkness that had set in.

3.2.10. The two aircraft diverted to alternate aerodromes with night facilities that required instrument rating (to complete the landing) as well as prior permission. *FALY is not equipped with night facilities*.

3.2.11. The official weather report obtained from the SAWS indicated prevalence of inclement weather conditions in Greytown at the time of the accident, which was consistent with the official weather report that was received and the statement made by the crew of ZS-CZU.

3.3. Probable Cause/s

3.3.1. Loss of control due to spatial disorientation following a loss of external references whilst operating the aircraft in instrument meteorological conditions (IMC).

3.4. Contributory Factor/s

3.4.1. Improper flight planning and a contravention of regulations pertaining to the privileges of a pilot licence.

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 that the Director of Civil Aviation reviews the actions of the ZS-EIL crew who landed after sunset at FALY and departed during official nighttime to FAWB on 8 June 2025 from an aerodrome that did not have any runway lights.

4.2.2 Flight schools should develop a mentorship programme for hour-building Commercial Pilot Licence (CPL) students which would enable the monitoring of navigational planning. The mentorship programme should be developed in consultation with chief flight CA 12-14a 14 May 2024 Page 21 of 21 instructors of approved training organisations (ATOs); the agreed programme should be included in the technical standards and transposed into the ATO Training Procedures Manual (TPM). This will ensure consistency with all CPL hour-builders affiliated with the ATOs.

4.2.3 It is recommended that the Director of Civil Aviation reviews the rules regarding night VFR flights without a flight plan. Moreover, the time of landing before sunset for VFR flights must be restricted to 30 minutes before the official sunset of the day if the aerodrome of choice does not have light facilities or the Notam indicating that the light facilities are unserviceable.

5. APPENDICES

5.1. None.

This report is issued by:

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