

PRELIMINARY ACCIDENT REPORT

Accident and Incident Investigations Division

Accident
- Preliminary Report -
AIID Ref No: CA18/2/3/10393



Figure 1: A similar aircraft type to the accident aircraft. (Source: <http://www.pilotspost.com/arn0001692>)

Description:

On Sunday, 26 November 2023, a Bat Hawk R aircraft with registration ZU-XCO took off on a private flight from Aviator's Paradise in the North West province to Grassland Airfield in Gauteng province. On-board the aircraft were the pilot and the passenger. According to an eyewitness who was positioned at the hangars, he observed the aircraft approach from the west; it made a steep left turn whilst flying approximately 100 feet (ft) above ground level (AGL) as if the pilot intended to land on the runway heading south-east. During a turn with the left wing low, the aircraft suddenly nosed down and impacted the ground. Both occupants were fatally injured; the aircraft was substantially damaged.

Occurrence Details

Reference Number : CA18/2/3/10393
Occurrence Category : Category 1
Type of Operation : Private 94 (NTCA)
Name of Operator : Plane ADS (PTY) LTD
Aircraft Make and Model : Micro Aviation SA; Bat Hawk R
Nationality : South African
Registration Marks : ZU-XCO
Place : Grassland Airfield, Centurion, Gauteng Province
Date and Time : 26 November 2023 at 0545Z
Injuries : Fatal
Damage : Substantial

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) of the South African Civil Aviation Authority (SACAA) was notified of the occurrence involving a Bat Hawk R, which occurred at Grassland Airfield, Gauteng province, on 26 November 2023 at 0545Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) STD Annex 13 definitions.

The AIID has appointed an investigator-in-charge to conduct a full investigation. The investigators had dispatched to the accident site for this occurrence. Notifications were sent to the State of Registry, Operator, Design and Manufacturer in accordance with the CAR 2011 Part 12 and ICAO Annex 13 Chapter 4. r. The AIID will lead the investigation and issue the final report of this accident in accordance with the CAR 2011 Part 12 and ICAO Annex 13.

The information contained in this preliminary report is derived from the information gathered during the on-going investigation into the occurrence. Later, an interim or final report may contain altered information in case new evidence is found during the on-going investigation that requires changes to the information depicted in this report.

The AIID reports are made available to the public at:

<https://www.caa.co.za/industry-information/accidents-and-incidents/>

Notes:

- Whenever the following words are mentioned in this report, they shall mean the following:
Accident — this investigated accident
Aircraft — the Bat Hawk R 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 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

This report is produced without prejudice to the rights of the SACAA, which are reserved.

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
'	Minute
"	Second
AGL	Above Ground Level
AIID	Accident and Incident Investigations Division
AMSL	Above Mean Sea Level
ATF	Authority To Fly
AP	Approved Person
CAR	Civil Aviation Regulations
C of R	Certificate of Registration
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
EMS	Emergency Medical Services
FAAP	Aviator's Paradise Airfield
FAGC	Grand Central Airfield
FDR	Flight Data Recorder
ft	Feet
GPS	Global Positioning System
hPa	Hectopascal
km	Kilometre
kt	Knots
m	Metres
METAR	Meteorological Aerodrome Report
MHz	Megahertz
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
VMC	Visual Meteorological Conditions
QNH	Altitude Above 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 Sunday, 26 November 2023, a Bat Hawk R aircraft with registration ZU-XCO was involved in an accident during a private flight at Grassland Airfield in Centurion, Gauteng province. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.
- 1.1.2. According to the eyewitness (a friend of the pilot), they had planned to fly in formation from Grassland Airfield to Rustenburg in the North West province for a breakfast meeting. The ZU-XCO took off with the pilot and a passenger on-board from Aviator's Paradise Airfield in Brits (FAAP), North West province, to Grassland Airfield. The eyewitness heard the aircraft as it passed overhead the hangars during its approach for landing. He then got out of his car which was parked near the hangars and walked towards the runway barriers. He observed the aircraft approach from the western direction, it then made a steep left turn whilst flying at a height of approximately 100 feet (ft) above ground level (AGL) as if the pilot intended to land the aircraft on the runway heading south-east.
- 1.1.3. The eyewitness stated that during the steep left turn whilst at a low height and with the left-wing low, the aircraft suddenly nose-dived and impacted the ground; it skidded forward for a short distance before it stopped, facing the opposite direction from which it had approached. The occupants were trapped on-board. The eyewitness and the other member of the flying club (who was in his hangar) rushed to the accident site where they found the aircraft with the engine still running and with no propeller blades. They then switched off the aircraft's engine by pulling off the spark plug distributor cables; they also disconnected the battery terminal fuse.
- 1.1.4. All relevant parties were contacted, and both occupants were declared fatally injured by the Emergency Medical Services (EMS) personnel. The aircraft was substantially damaged during the accident sequence.
- 1.1.5. The accident occurred during daylight at Grassland Airfield at Global Positioning System (GPS) co-ordinates determined to be 25°49'38.0" South 028°05'43" East, at an elevation of about 4 530 feet (ft) above mean sea level (AMSL).



Figure 2: The view of the accident site. (Source: Google Maps)

1.2. Injuries to Persons

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

Note: Other means people on the ground.

1.2.1. Both occupants were fatally injured.

1.3. Damage to Aircraft

1.3.1. The aircraft sustained substantial damage.



Figure 3: The aircraft at the accident site.

1.4. Other Damage

1.4.1. None.

1.5. Personnel Information

Nationality	South African	Gender	Male	Age	57
Licence Type	Private Pilot Licence (PPL)				
Licence Valid	Yes	Type Endorsed	No		
Ratings	None				
Medical Expiry Date	31 March 2024				
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	±106.9
Total Past 24 Hours	0.4
Total Past 7 Days	1.7
Total Past 90 Days	8.8
Total on Type Past 90 Days	8.8
Total on Type	99.39

- 1.5.1. The pilot had a Private Pilot Licence (PPL) which was initially issued by the Regulator (SACAA) on 6 July 2023 with an expiry date of 30 June 2024. The aircraft type was not endorsed on the pilot's licence.
- 1.5.2. The pilot was issued a Class 2 aviation medical certificate on 11 March 2023 with an expiry date of 31 March 2024 with no restrictions.
- 1.5.3. According to available evidence from the pilot's logbook and licence application to the Regulator, the pilot was initially issued a Recreational Student Pilot Licence (SPL) on 11 March 2022 with an expiry date of 10 March 2023. The Bat Hawk X341 aircraft type was endorsed on the pilot's licence. The pilot conducted most of the training on the aircraft type starting from 12 March 2022 to 16 June 2023, and accumulated 66.16 flying hours. On 21 March 2023, the pilot's logbook was signed off by the instructor who authorised the pilot to fly solo.
- 1.5.4. On 7 May 2023, the pilot applied for a Student Pilot Licence (SPL) (a Part 61 licence with the objective of acquiring a Private Pilot Licence [PPL]), which was issued on 16 May 2023 with an expiry date of 15 May 2024. A Cessna 172 aircraft type was endorsed on the SPL. There was no available flying experience details on the Cessna aircraft type recorded in the pilot's logbook.
- 1.5.5. The pilot flew a Jabiru J400 aircraft type from 16 June 2023 to 18 June 2023, and accumulated 6.61 flying hours. On 17 June 2023, the instructor endorsed the J400 aircraft on the pilot's logbook.
- 1.5.6. The pilot's PPL application indicated the J400 aircraft type, however, the licence was issued with only the C172 aircraft endorsed on it.

1.6. Aircraft Information

The information below is an extract from the Bat Hawk Pilot’s Operating Handbook (POH).

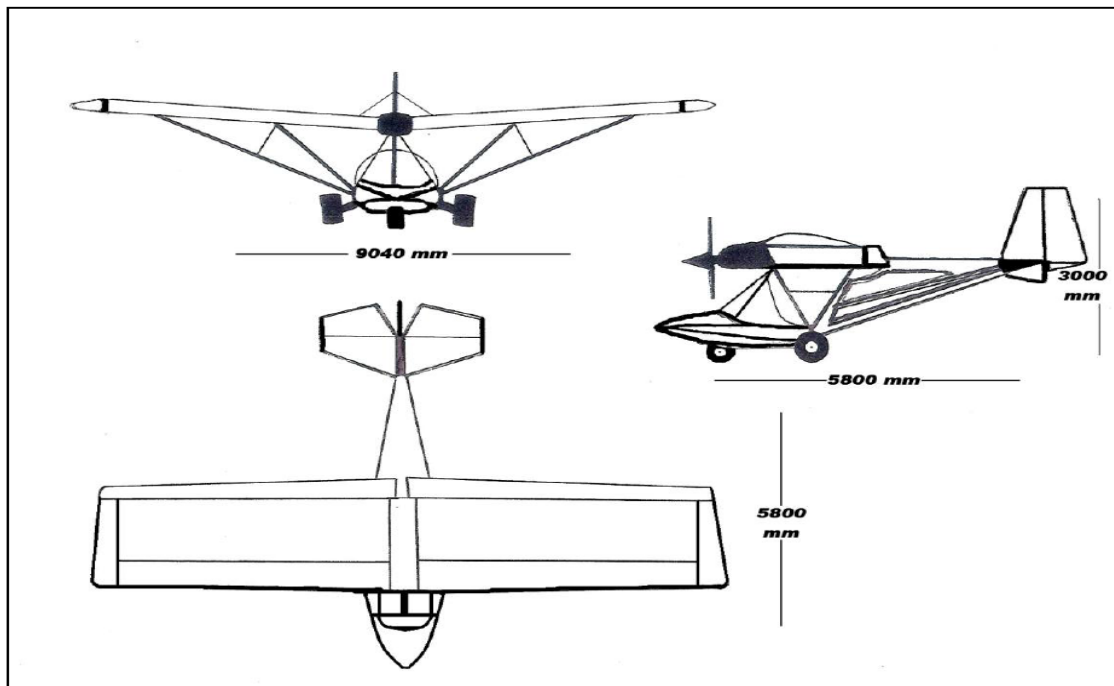


Figure 4: Shows the three-dimensional view diagram of the aircraft type.

1.6.1. *The Bat Hawk R is a high wing monoplane with the crew of two seating side-by-side in an under-slung tubular framed structure surrounded by a glass fibre composite fairing. Crew members are protected from the weather by a large wrap-around windshield. The propeller and the engine are mounted in a tractor position above and in front of the crew. The empennage is conventional in location and layout. The undercarriage is a tricycle arrangement with a steerable nose wheel.*

Airframe:

Manufacturer/Model	Micro Aviation SA / Bat Hawk R	
Serial Number	0107	
Year of Manufacture	2022	
Total Airframe Hours (At Time of Accident)	Approximately 145	
Last Inspection (Date & Hours)	7 October 2023	143.3
Hours Since Last Inspection	1.7	
CRS Issue Date	7 October 2023	
ATF (Issue Date & Expiry Date)	22 November 2023	10 October 2024
C of R (Issue Date) (Present Owner)	15 September 2022	
Type of Fuel Used	Avgas / Mogas 95 octane	
Operating Category	General Aviation (NTCA) Part 94	
Previous Accidents	None	

Note: The aircraft’s logbook was not completed for any other flight following the annual maintenance inspection.

Engine:

Manufacturer/Model	Rotax 912 ULS
Serial Number	9144541
Hours Since New	143.3
Hours Since Overhaul	TBO not yet reached

Propeller:

Manufacturer/Model	E-Prop
Serial Number	DUR-3-190-C4-T
Hours Since New	143.3
Hours Since Overhaul	TBO not yet reached

- 1.6.2. The aircraft maintenance records were reviewed post-accident and they revealed that the aircraft was fairly new with approximately 145 airframe hours. The aircraft had a valid Authority to Fly (ATF) that was issued by the Regulator on 22 November 2023 with an expiry date of 10 October 2024. The aircraft was issued a Certificate of Registration (C of R) under the current owner on 15 September 2022.

1.7. Meteorological Information

- 1.7.1. The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS), recorded at Grand Central Aerodrome (FAGC) on 26 November 2023 at 0700Z. FAGC is located 9 nautical miles (nm) south-east of the accident site.
FAGC 260700Z 02013KT CAVOK 26/14 Q1027=

Wind Direction	020°	Wind Speed	13 kt	Visibility	10 km
Temperature	26°C	Cloud Cover	CAVOK	Cloud Base	CAVOK
Dew Point	14°C	QNH	1027 hPa		

1.8. Aids to Navigation

- 1.8.1. The aircraft was equipped with standard navigational equipment as approved by the Regulator. 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. The accident occurred at Grasslands Airfield in Gauteng province.

Aerodrome Location	Centurion, Gauteng Province
Aerodrome Status	Unlicensed
Aerodrome GPS coordinates	S 25° 49' 42.80"/E 028° 05' 34.16"
Aerodrome Elevation	4560 ft
Runway Headings	14/32
Dimensions of Runway Used	850X14 metres
Heading of Runway Used	14
Surface of Runway Used	Gravel
Approach Facilities	None
Radio Frequency	125.80 MHz

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



Figure 5: Wreckage distribution at the accident site. (Source: SAPS Air-Wing)

- 1.12.1 The accident occurred at an open area, approximately 500 metres (m) from the airfield. The wreckage was fairly localised within a radius of approximately 20m.
- 1.12.2 After impact, the aircraft skidded in the initial direction whilst facing the opposite direction of approach. The nose section and the cockpit windshield fragments were found at the impact point. The cockpit area was compromised, and both occupants were trapped inside the wreckage. They were fatally injured.
- 1.12.3 The aircraft's left-wing tip portion of the leading-edge towards the inner part was bent, indicative of impact forces sustained mostly on the left side. The left side of the nose section and the cockpit sustained extensive damage. The right wing was still intact with no visible damage or deformation.
- 1.12.4 The fuel tank was damaged which caused fuel to spill to the ground. There was no visible damage to the aircraft's engine.

1.13. Medical and Pathological Information

- 1.13.1. The medical and pathological reports were not available at the time of the release of this preliminary report.

1.14. Fire

- 1.14.1. There was no pre- or post-impact fire during the accident sequence.

1.15. Survival Aspects

- 1.15.1. The attitude at which the aircraft impacted the ground caused extensive damage to the cockpit. This compromised the safety of the occupants who were fatally injured during the impact sequence.

1.16. Tests and Research

- 1.16.1. None of the aircraft components was taken for testing.

1.17. Organisational and Management Information

- 1.17.1. The aircraft was operated in private capacity under the provisions of Part 94 of the CAR 2011 as amended.
- 1.17.2. The aircraft ownership was a partnership; it was issued a Certificate of Registration by the Regulator on 15 September 2022.
- 1.17.3. The aircraft maintenance was conducted by the manufacturer. The aircraft was issued a Certificate of Release to Service (CRS) on 7 October 2023 at 143.3 airframe hours with an expiry date of 7 October 2024 or at 243 airframe hours, whichever comes first.

1.17.4. The Approved Person (AP) who conducted maintenance on the aircraft had a valid Approved Person Certificate that was issued by the Regulator on 7 February 2023 with an expiry date of 6 February 2025.

1.18. Additional Information

1.18.1. To be discussed in the final report.

1.19. Useful or Effective Investigation Techniques

1.19.1. To be discussed in the final report.

2. FINDINGS

2.1. General

From the available evidence, the following preliminary findings 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 conclusions 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.

2.2. Findings

2.2.1. The pilot had a Private Pilot Licence (PPL) which was initially issued by the Regulator on 6 July 2023 with an expiry date of 30 June 2024. The aircraft type was not endorsed on the pilot's licence.

2.2.2. The pilot's Class 2 medical certificate was issued on 11 March 2023 with an expiry date of 31 March 2024 with no restrictions.

2.2.3. The pilot's licence did not have the aircraft type endorsed on it. The pilot's air crew licence (PPL) application submission was sent with a Jabiru J400 aircraft type information; however, the PPL was issued with only a C172 licence endorsement. Both training aircraft were not endorsed on the pilot's licence.

2.2.4. The aircraft had a valid Authority to Fly (ATF) that was issued by the Regulator on 22 November 2023 with an expiry date of 10 October 2024. The aircraft was issued a Certificate of Registration (C of R) under the current owner on 15 September 2022.

2.2.5. The Approved Person (AP) who conducted maintenance on the aircraft had a valid Approved Person Certificate that was issued by the Regulator on 7 February 2023 with an expiry date of 6 February 2025.

2.2.6. The aircraft was observed approaching and flying low at a height of approximately 100ft, it crashed during a steep left turn.

3. ON-GOING INVESTIGATION

3.1. The AIID investigation is on-going and the investigators will be investigating other aspects of this occurrence which may or may not have safety implications.

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