

PRELIMINARY ACCIDENT REPORT

Accident and Incident Investigations Division

Accident
- Preliminary Report -
AIID Ref No: CA18/2/3/10462



Figure 1: File picture of ZU-DWK aircraft prior to the accident.

Description:

On Saturday morning, 8 June 2024, a pilot and a passenger on-board a Jabiru J160C aircraft with registration ZU-DWK were on a private flight from Stellenbosch Aerodrome (FASH) in the Western Cape province with the intention to land at Caledon Airfield (FACG) in the same province when the engine stopped. Visual meteorological conditions (VMC) by day prevailed at the time the flight which was conducted under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot reported that during the initial climb after take-off from Runway 01 at FASH, the engine lost power. He then performed a forced landing on a strawberry farm approximately 500 metres (m) from the threshold of Runway 19. The aircraft was substantially damaged. The pilot sustained minor injuries, and the passenger was unharmed.

Occurrence Details

Reference Number : CA18/2/3/10462
Occurrence Category : Category 1
Type of Operation : Private (Part 94)
Name of Operator : Privately operated (Eigvasc)
Aircraft Registration : ZU-DWK
Aircraft Make and Model : Jabiru J160
Nationality : South African
Place : 500 metres (m) from the threshold of Runway 19 at FASH
Date and Time : 8 June 2024 at 0740Z
Injuries : Minor
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 Jabiru J160 which occurred at FASH in the Western Cape province on 8 June 2024 at 0740Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and the International Civil Aviation Authority (ICAO) STD Annex 13 definitions.

The AIID has appointed an investigator-in-charge to conduct a full investigation. The investigator did not dispatch to the accident site for this occurrence. Notifications was sent to the State of Registry and Operator in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. The States did not appoint an accredited representative and/or advisor. The AIID will lead the investigation and issue the final report of this accident in accordance with the CAR 2011 Part 12 and the 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 investigation accident
Aircraft — the Jabiru J160 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 various 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
AIID	Accident and Incident Investigations Division
AME	Aircraft maintenance engineer
AMO	Aircraft maintenance organization
ATF	Authority to Fly
CAR	Civil Aviation Regulations
C of R	Certificate of Registration
CPL	Commercial Pilot Licence
CRS	Certificate of Release to Service
FACG	Caledon Airfield
FACT	Cape Town International Airport
FASH	Stellenbosch Aerodrome
ft	Feet
GPS	Global Positioning System
hPa	Hectopascal
IAW	In accordance with
km	kilometres
kt	Knots
m	Metres
METAR	Meteorological Routine Aerodrome Report
MHz	Megahertz
N/A	Not applicable
RWY	Runway
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
QNH	Altitude Above Mean Sea Level
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, 8 June 2024, a pilot and a passenger on-board a Jabiru J160C aircraft with registration ZU-DWK were on a private flight from Stellenbosch Aerodrome (FASH) in the Western Cape province with the intention to land at Caledon Airfield (FACG) in the same province when the engine stopped. 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. The pilot reported that this was the aircraft's second flight after the 100-hour inspection. According to the pilot, he conducted an extensive pre-flight check as well as detailed pre-take-off and engine parameter checks. The aircraft had approximately 95 litres of aviation gasoline (Avgas) 100LL. The pilot stated that he entered Runway (RWY)19 for take-off and, after reaching rotation speed, the aircraft climbed and cleared the threshold of RWY 01. During the initial climb, the pilot felt a vibration on the aircraft and noticed that the engine revolutions per minute (RPM) had decreased from 2960 to 1390 and that the engine power had also decreased. The stall warning activated whilst the speed continued to reduce. The pilot decided to perform a forced landing on an open field at a strawberry farm. He lowered the aircraft's nose to increase speed but there was not enough height. Whilst in a nose-dive attitude, the aircraft crashed approximately 500 metres (m) on the right side of the threshold of Runway 19 and was substantially damaged. The pilot sustained minor injuries, and the passenger was unharmed.
- 1.1.3. The accident occurred during daylight on a farm, approximately 500 metres (m) from the threshold of Runway 19 at Global Positioning System (GPS) co-ordinates determined to be 33°59'07" South 018°49'23" East, at an elevation of 335 feet (ft).

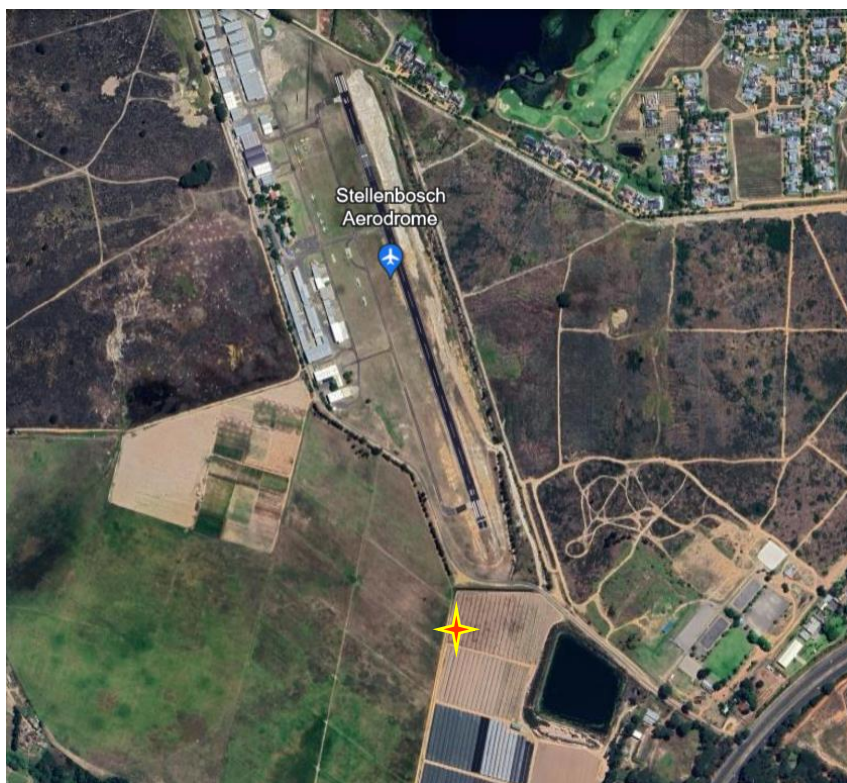


Figure 2: Aerial view of the accident site. (Source: Google Earth)

1.2. Injuries to Persons

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

Note: Other means people on the ground.

1.3. Damage to Aircraft

- 1.3.1. The aircraft sustained substantial damage to the fuselage, wings, landing gears and the propeller due to the impact force. The horizontal and the vertical stabilisers were also damaged on impact with the ground.



Figure 3: The aircraft's resting position after the accident. (Source: Pilot)

1.4. Other Damage

- 1.4.1. The strawberry crops and the cover material were damaged during the accident sequence.



Figure 4: The torn strawberry cover material. (Source: Pilot)

1.5. Personnel Information

Nationality	Egyptian	Gender	Male	Age	40
Licence Type	Commercial Pilot Licence (CPL) Aeroplane				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Night, Instrument and Instructor Grade II ratings				
Medical Expiry Date	31 March 2025				
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	1265
Total Past 24 Hours	0
Total Past 7 Days	0
Total Past 90 Days	89.9
Total on Type Past 90 Days	78
Total on Type	274

- 1.5.1. The pilot was initially issued a Commercial Pilot Licence (CPL) on 28 January 2021 under the provisions of Part 61 of the CAR 2011. The licence was revalidated on 26 February 2024 with an expiry date of 31 January 2025.

1.5.2. The pilot was issued a Class 1 medical certificate on 6 March 2024 with an expiry date of 31 March 2025. The medical certificate was issued with no restrictions.

1.6. **Aircraft Information** (Source: Jabiru J160 Aircraft Manual)

The JABIRU aircraft is a two-seat, high-wing monoplane composite aircraft of monocoque construction. It is equipped with fixed tricycle landing gear of composite construction. The steerable nose gear is a welded metal, trailing link assembly with rubber springs.

Airframe:

Manufacturer/Model	Shadow Lite CC/ J160	
Serial Number	018	
Year of Manufacture	2005	
Total Airframe Hours (At Time of Accident)	2540.8 (Hobbs Hours)	
Last Inspection (Date & Hours)	31 May 2024	2539.9
Hours Since Last Inspection	0.9	
CRS Issue Date	7 June 2024	
ATF (Issue Date & Expiry Date)	28 May 2024	31 May 2025
C of R (Issue Date) (Present Owner)	4 April 2019	
Type of Fuel Used	Avgas 100LL	
Operating Category	Production Built	
Previous Accidents	N/A	

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

Engine:

Manufacturer/Model	Jabiru Aircraft PTY (LTD)
Serial Number	22A2193
Part Number	2200B
Hours Since New	390
Hours Since Overhaul	Not yet reached

Propeller:

Manufacturer/Model	Jabiru Composite
Serial Number	0369/0446
Part Number	CC000242-D60P42
Hours Since New	446.1
Hours Since Overhaul	Not yet reached

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 FACT on 8 June 2024 at 0730Z. FACT is located 22 kilometres (km) from the accident site.

Wind Direction	Variable	Wind Speed	2kt	Visibility	9999m
Temperature	13°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	10°C	QNH	1032hPa		

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	Stellenbosch Aerodrome
Aerodrome Location	Stellenbosch, Western Cape Province
Aerodrome Status	Licensed
Aerodrome GPS coordinates	33°58.83' South, 18°49.37' East
Aerodrome Elevation	321 ft
Runway Headings	01/19
Dimensions of Runway Used	760 x 16 m
Heading of Runway Used	01
Surface of Runway Used	Asphalt
Approach Facilities	None
Radio Frequency	119.3 MHz

1.11. Flight Recorders

- 1.11.1. The aircraft was not 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. During the initial climb from Runway 01, the aircraft lost engine power and the pilot forced landed the aircraft. However, it landed on a strawberry farm and damaged the crops and the cover that protected the strawberries. The aircraft sustained damage to the fuselage, wings, landing gears and the propeller due to the impact force. The horizontal and the vertical stabilisers were also damaged on impact with the ground.



Figure 5: The damaged fuselage and wings. (Source: Pilot)



Figure 6: The damaged vertical and horizontal stabilisers. (Source: Pilot)



Figure 7: The position of the propeller indicates that the engine was not turning when it impacted the ground. (Source: Pilot)

1.13. Medical and Pathological Information

1.13.1. None.

1.14. Fire

1.14.1. There was no evidence of a pre- or post-impact fire.

1.15. Survival Aspects

1.15.1. The accident was considered survivable as the cockpit area sustained minor damage due to low impact speed at the time of the accident. The pilot and the passenger had their safety harnesses on during the accident sequence.

1.16. Tests and Research

1.16.1. To be discussed in the final report.

1.17. Organisational and Management Information

1.17.1. This was a private flight operated under the provisions of Part 94 of the South African Civil Aviation Regulations 2011 as amended.

1.17.2. The aircraft was maintained by the SACAA approved aircraft maintenance organisation (AMO). The AMO was issued an AMO Certificate on 31 October 2023 with an expiry date of 31 October 2024.

1.18. Additional Information

1.18.1. The pilot stated that on 28 May 2024, the engine had shut down during the run-up checks, and the aircraft was towed back to the hangar. A carbon build-up on the sparkplugs was found after the aircraft was inspected. The sparkplugs were cleaned, and the engine run was conducted and was found serviceable. After 10.5 hours of flight, the aircraft's mandatory periodic inspection (MPI) was conducted, and post-maintenance flight was carried out. All was found satisfactory. However, according to the work pack, the sparkplugs were to be changed as per the maintenance manual which requires replacement of sparkplugs every 100 hours. The sparkplugs were not changed, and the job was signed out as not applicable (N/A).

1.18.2. After the accident, the aircraft maintenance engineer (AME) who recovered the aircraft stated that visual inspection was conducted to check for any external damage; no abnormalities were found. The engine was turned by hand, and it operated smoothly. The sparkplugs were removed and checked for any evidence of oil as the engine was found in an inverted attitude. The engine was run without a propeller being fitted and was found to be operating satisfactory.

1.19. Useful or Effective Investigation Techniques

1.19.1. None.

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 was initially issued a Commercial Pilot Licence (CPL) on 28 January 2021 under the provisions of Part 61 of the CAR 2011 as amended. The pilot was reissued his licence on 26 February 2024 with an expiry date of 31 January 2025. The pilot had the night, instrument and instructor Grade 2 ratings in accordance with (IAW) the existing regulations.

- 2.2.2 The pilot was issued a Class 1 aviation medical certificate on 6 March 2024 with an expiry date of 31 March 2025.
- 2.2.3 The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 91 of the CAR 2011.
- 2.2.4 The aircraft was issued a Certificate of Registration (C of R) on 4 April 2019.
- 2.2.5 The aircraft was initially issued an Authority to Fly (ATF) Certificate on 29 May 2020. The Certificate of Airworthiness (C of A) was renewed on 28 May 2024 with an expiry date of 31 May 2025.
- 2.2.6 The last 100-hour mandatory periodic inspection (MPI) that was conducted on the aircraft prior to the accident flight was certified on 31 May 2024 at 2539.9 Hobbs hours. The accident occurred at 2540.8 Hobbs hours, which meant that the aircraft accrued an additional 0.9 hours since the last MPI.
- 2.2.7 The aircraft was issued a Certificate of Release to Service (CRS) on 7 June 2024 with an expiry date of 26 November 2024 or at 2639.9 airframe hours, whichever occurs first.
- 2.2.8 The aircraft maintenance organisation (AMO) which conducted the last MPI on the aircraft had an AMO certificate that was issued on 31 October 2023 with an expiry date of 31 October 2024.
- 2.2.9 The engine revolutions per minute (RPM) had decreased from 2960 to 1390 during the initial climb, and the engine power decreased.

3. ON-GOING INVESTIGATION

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

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. 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**