

PRELIMINARY ACCIDENT REPORT

Accident and Incident Investigations Division

Accident
- Preliminary Report -
AIID Ref No: CA18/2/3/10312



Figure 1: The ZU-IMB aircraft post-accident. (Source: Pilot)

Description:

On Sunday morning, 28 May 2023, a pilot on-board a Dyn'Aéro MCR4S aircraft with registration ZU-IMB intended to take-off on a private flight from Petit Airfield (FARA) in Gauteng province to Tranquility Spa Lodge, also in the same province, when the accident occurred. 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. The pilot reported that during taxi at FARA, the nose wheel separated from the nose wheel strut and the propeller tips contacted the ground. The aircraft came to rest in a tail-high position. No people were injured during the accident.

Occurrence Details

Reference Number : CA18/2/3/10312
Occurrence Category : Category 1
Type of Operation : Private (Part 94)
Name of Operator : A M Lange
Aircraft Registration : ZU-IMB
Aircraft Make and Model : Dyn'Aéro MCR 4 S
Nationality : South African
Registration Marks : ZU-IMB
Place : Petit Airfield (FARA)
Date and Time : 28 May 2023 at 0910Z
Injuries : 1+0
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 Dyn'Aéro MCR 4 S aircraft which occurred at Petit Airfield, Gauteng province, on 28 May 2023 at 0910Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and ICAO STD Annex 13 definitions.

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

<http://www.caa.co.za/Pages/Accidents%20and%20Incidents/Aircraft-accident-reports.aspx>

Notes:

- Whenever the following words are mentioned in this report, they shall mean the following:*
Accident — this investigated accident
Aircraft — the Dyn'Aéro MCR4S 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

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
AP	Approved Person
ATF	Authority to Fly
ATPL	Airline Transport Pilot Licence
C of R	Certificate of Registration
CAVOK	Cloud and Visibility Ok
CRS	Certificate of Release to Service
FARA	Petit Airfield
FDR	Flight Data Recorder
Ft	Feet
GPS	Global Positioning System
hPa	Hectopascal
kt	Knots
m	Metres
QNH	Altitude Above Mean Sea Level
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
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 Sunday morning, 28 May 2023, a pilot on-board a Dyn'Aéro MCR4S aircraft with registration ZU-IMB intended to take-off on a private flight from Petit Airfield (FARA) in Gauteng province to Tranquility Spa Lodge, also in the same province, when the accident occurred. 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 during taxi at FARA, the nose wheel separated from the nose wheel strut and the propeller tips contacted the ground. The aircraft came to rest in a tail-high position. No people were injured during the accident.

1.1.3 The accident occurred during taxi at FARA at Global Positioning System (GPS) coordinates determined to be 26°04'53.5" South 028°23'26.0" East at a field elevation of 5450 feet (ft).

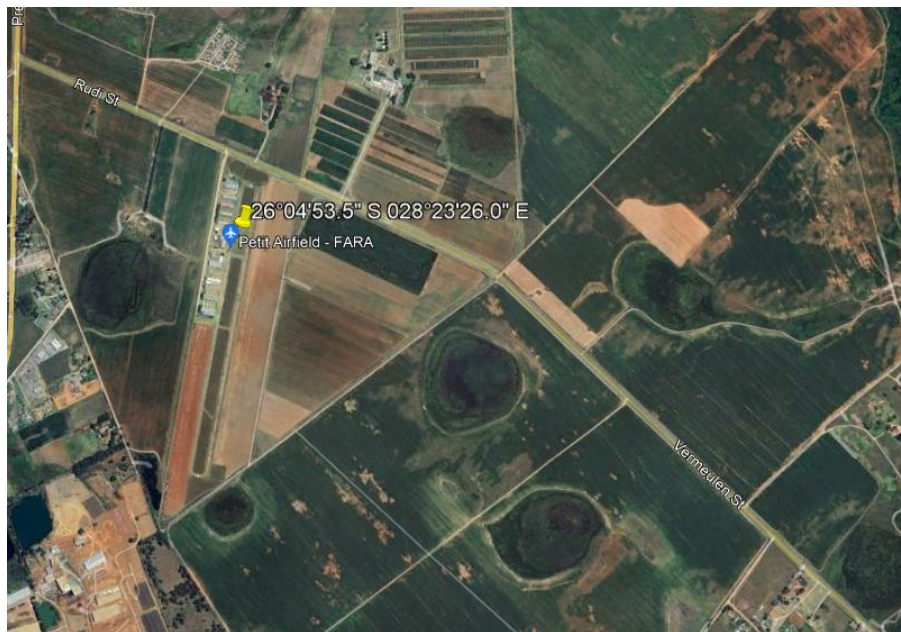


Figure 2: View of the accident site. (Source: Google Earth)

1.2 Injuries to Persons

1.2.1 No persons were injured during the accident.

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

Note: Other means people on the ground.

1.3 Damage to Aircraft

- 1.3.1 The aircraft sustained substantial damage to the propeller tips and the nose wheel separated from the strut.



Figure 3: One of the damaged propeller blades. (Source: Pilot)



Figure 4: The nose wheel separated from the wheel strut. (Source: Pilot)



Figure 5: Strut of the aircraft taken for further analysis.

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	59
Licence Type	Airline Transport Pilot Licence (ATPL) Aeroplane				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument				
Medical Expiry Date	31 October 2023				
Restrictions	Valid only with correction for defective near vision				
Previous Accidents	None				

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

Flying Experience:

Total Hours	18075.0
Total Past 24 Hours	0.5
Total Past 7 Days	12.4
Total Past 90 Days	12.4
Total on Type Past 90 Days	12.4
Total on Type	250.7

- 1.5.1 The aircraft maintenance logbooks (airframe, engine and propeller), flight folio and the annual maintenance work pack were reviewed, and all engine and airframe manufacturer-released Service Bulletins (SB), Airworthiness Directives (ADs) and Service Letters (SLs) were adhered to.
- 1.5.2 The pilot was initially issued an Airline Transport Pilot Licence (ATPL) by the Regulator (SACAA) on 13 May 1993. His renewed licence was reissued on 11 October 2022 with an expiry date of 31 October 2023. His Class 1 medical certificate was issued on 7 October 2022 with an expiry date of 31 October 2023 and with a restriction to wear lenses to correct his defective near vision. The aircraft type was endorsed on the pilot's licence.

1.6 Aircraft Information

- 1.6.1 The Dyn'Aéro MCR4S is a four-seat single engine aircraft, and can also be built as a two-seat aircraft. The aircraft was first flown in early 2000 and is sold in a kit form.

Airframe:

Manufacturer/Model	Dyn'Aéro MCR4S	
Serial Number	P0045	
Year of Manufacture	2000	
Total Airframe Hours (At Time of Accident)	210.2	
Last Inspection (Date & Hours)	2 April 2023	198.5
Hours Since Last Inspection	11.7	
CRS Issue Date	2 April 2023	
C of ATF (Issue Date & Expiry Date)	17 April 2019	30 April 2024
C of R (Issue Date) (Present Owner)	23 October 2017	
Type of Fuel Used	Avgas 100 LL	
Operating Category	Part 94	
Previous Accidents	No	

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

Engine:

Manufacturer/Model	Rotax 914 UL
Serial Number	4419925
Part Number	N/A
Hours Since New	275
Hours Since Overhaul	N/A

Propeller:

Manufacturer/Model	MTV Propeller / MTV-21-A/170-125
Serial Number	190092
Part Number	N/A
Hours Since New	198.5
Hours Since Overhaul	N/A

- 1.6.2 The aircraft had a valid Authority to Fly certificate that was issued by the Regulator on 17 April 2019 with an expiry date of 30 April 2024.
- 1.6.3 The latest annual inspection maintenance conducted on the aircraft was on 2 April 2023. The approved person (AP) who conducted maintenance issued the aircraft's Certificate of Release to Service (CRS) on 2 April 2023 at 198.5 airframe hours with an expiry date of 30 April 2024 or at 300 airframe hours, whichever comes first.
- 1.6.4 The AP had an aircraft maintenance organisation (AMO) approval certificate that was issued by the Regulator on 26 May 2022 with an expiry date of 25 May 2024.

1.7 Meteorological Information

- 1.7.1 The weather information below was obtained from the pilot questionnaire.

Wind Direction	060°	Wind Speed	9kt	Visibility	CAVOK
Temperature	21°C	Cloud Cover	None	Cloud Base	None
Dew Point	8°C	QNH	Unknown		

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 accident.

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.

1.10 Aerodrome Information

- 1.10.1 The accident occurred at FARA at GPS co-ordinates 26°04'53.5" South 028° 23'26" East at a field elevation of 5450ft.

Aerodrome Location	Gauteng Province
Aerodrome Status	Unlicensed
Aerodrome Co-ordinates	26°04'53.5" South 028° 23'26" East
Aerodrome Altitude	5450 ft
Runway Headings	03 / 21
Runway Dimensions	1300m x 30m
Runway Used	03
Runway Surface	Grass
Approach Facilities	Nil
Radio Frequency	133.2 MHz

1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a flight data recorder (FDR) and cockpit voice recorder (CVR), nor was it required by regulation to be fitted to this aircraft.

1.12 Wreckage and Impact Information

1.12.1 The aircraft accident occurred during taxi at FARA on Runway 03.

1.13 Medical and Pathological Information

1.13.1 To be discussed in the final report.

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 was still intact. The pilot had made use of the aircraft's safety harnesses.

1.16 Tests and Research

1.16.1 To be discussed in the final report.

1.17 Organisational and Management Information

1.17.1 The flight was conducted in accordance with the provisions of Part 94 of the CAR 2011 as amended.

1.17.2 The AP who conducted maintenance on the aircraft had an AMO approval certificate that was issued by the Regulator on 26 May 2022 with an expiry date of 25 May 2024.

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 was issued an Airline Transport Pilot Licence (ATPL) by the Regulator on 13 May 1993. His renewed licence was reissued by the Regulator on 11 October 2022 with an expiry date of 31 October 2023.

2.2.2 The pilot had a Class 1 medical certificate that was issued on 7 October 2022 with an expiry date of 31 October 2023 with the restriction to wear lenses to correct his defective near vision. The aircraft type was endorsed on the pilot's licence.

2.2.3 The aircraft had a valid Authority to Fly certificate that was issued by the Regulator on 17 April 2019 with an expiry date of 30 April 2024.

2.2.4 The latest annual inspection maintenance on the aircraft was conducted on 2 April 2023. The AP who conducted the inspection issued the aircraft's CRS on 2 April 2023 at 198.5 airframe hours with an expiry date of 30 April 2024 or at 300 airframe hours, whichever comes first.

2.2.5 The AP who serviced the aircraft had an AMO approval certificate that was issued by the Regulator on 26 May 2022 with an expiry date of 25 May 2024.

2.2.6 The flight was conducted in accordance with the provisions of Part 94 of the CAR 2011 as amended.

2.2.7 The nose wheel separated from the nose wheel strut during taxi.

3 ON-GOING INVESTIGATION

3.1 The AIID investigation is on-going and the investigators will be looking into 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**