

PRELIMINARY ACCIDENT REPORT

Accident and Incident Investigations Division

Accident
- Preliminary Report -
AIID Ref No: CA18/2/3/9963



Figure 1: The aircraft as it came to rest post-accident. (Source: Owner)

Description:

On Thursday 4 March 2021, a pilot on-board a Fokker E.III with registration ZU-FOK took off on a private flight from the Coves Airfield. The pilot reported that during the flight, he experienced a rough running engine. A few seconds later, the engine stopped. The pilot decided to execute a forced landing on a ploughed field. The aircraft was substantially damaged during the accident and the pilot sustained minor injuries.

INTRODUCTION

Reference Number : CA18/2/3/9963
Name of Owner : R Greyling
Name of Operator : R Greyling
Manufacturer : Rudi Greyling
Model : Fokker E.III
Nationality : South African
Registration Marks : ZU-FOK
Place : 1nm east of the Coves Airfield
Date : 4 March 2021
Time : 0545Z

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 was notified to the Accident and Incident Investigations Division (AIID) on 4 March 2021 at about 0545Z. The investigator/s conducted an off-site (limited) investigation. The investigator/s co-ordinated with all authorities on site by initiating the accident investigation process according to CAR Part 12 and investigation procedures. The AIID is leading the investigation as the Republic of South Africa is the State of Occurrence.

Notes:

1. Whenever the following words are mentioned in this report, they shall mean the following:

- Accident — this investigated accident*
- Aircraft — the Fokker E-III 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 AIID, which are reserved.

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ABBREVIATION	DESCRIPTION
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
°C	Degree Celsius
CARs	Civil Aviation Regulations
CAVOK	Ceiling and Visibility OK
CoR	Certificate of Registration
CVR	Cockpit Voice Recorder
E	East
FDR	Flight Data Recorder
Ft	Feet
GPS	Global Position System
IIC	Investigator-in-charge
KM	Kilometre/s
kt	Knot/s
M	Metre/s
MPI	Mandatory Periodic Inspection
N/A	Not Applicable
NM	Nautical Mile
NPL	National Pilot Licence
QNH	Query Nautical Height
S	South
SACAA	South African Civil Aviation Authority
UTC	Co-ordinated Universal Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Condition
Z	Zulu

1. FACTUAL INFORMATION

1.1. History of Flight

1.1.1 On Thursday 4 March 2021, a pilot on-board a Fokker E.III with registration ZU-FOK took off on a private flight from the Coves Airfield, which is a private airstrip. The flight was conducted under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.

1.1.2 The pilot reported that approximately 30 minutes into the flight, he experienced a rough running engine, and about five seconds later, the engine stopped. The pilot elected to execute a forced landing on a ploughed field. The aircraft touched down and came to rest in an inverted position.

1.1.3 The aircraft sustained substantial damages during the accident sequence and the pilot sustained minor injuries.

1.1.4 The accident occurred in a ploughed field approximately 1 nautical mile (nm) from the take-off airfield at Global Positioning System (GPS) co-ordinates determined to be 25°46'27.5" S 027°48'42.3" E at an elevation of 4000 feet (ft).



Figure 2: The approximate flight path and the accident location. (Source: Google Earth)

1.2. Injuries to Persons

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

Note: Other means people on ground.

1.3. Damage to Aircraft

1.3.1 The aircraft sustained substantial damage during the accident sequence.

1.4. Other Damage

1.4.1 None.

1.5. Personnel Information

Nationality	South African	Gender	Male	Age	46
Licence Number	0270496672	Licence Type	National Pilot Licence (NPL)		
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Night				
Medical Expiry Date	31 October 2021				
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	1987.6
Total Past 24 Hours	0.7
Total Past 7 Days	3.8
Total Past 90 Days	10.8
Total on Type Past 90 Days	3.8
Total on Type	3.8

1.6. Aircraft Information

Airframe:

Manufacturer/Model	Rudi Greyling, Fokker E.III	
Serial Number	42417	
Year of Manufacture	2020	
Date of Manufacture	2020	
Total Airframe Hours (At Time of Accident)	3.8	
Last MPI (Date & Hours)	12/01/2021	0.0
Hours Since Last MPI	3.8	
Proving Flight Authority to Fly (Issue Date)	15 February 2021	
Proving Flight Authority to Fly (Expiry Date)	15 February 2022	
C of R (Issue Date) (Present Owner)	2 February 2020	
Type of Fuel Used in the Aircraft	Unleaded 95	
Operating Categories	Part 24	
Previous Accidents	None	

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

1.6.1 The aircraft was issued a Certificate of Registration on 2 December 2020. The aircraft was issued a Proving Flight Authority to Fly on 15 February 2021 with an expiry date of 15 February 2022. The aircraft was still under Proving Flight and had operated for 3.8 airframe hours since new.

The following regulation is extracted from CAR 2011, Part 24.02.3 Subpart 6

Proving flight authority

(6) *A proving flight authority shall show the base from which the proving flights are to be carried out.*

(7) *A proving flight authority may be extended for further periods at the discretion of the Director, or if applicable, the organisation designated for the purpose in terms of part 149 of these regulations, as the case may be, on the submission of an inspection report equivalent to an annual inspection.*

(8) *The constructor, as required, may effect modifications and repairs during the periods of validity of the proving flight authority. However, should a major modification or repair be required, the Director or the organisation designated in terms of part 149 of these regulations, may require that the proving flights be commenced anew.*

(9) *Proving flights shall be carried out as prescribed in document SA-CATS 24.*

(10) *Flights conducted in terms of a proving flight authority—*

(a) are limited to an area not exceeding 100km radius from the specified base from which such flights are to be undertaken, unless stated otherwise on the proving flight authority;

(b) may only be conducted under VMC by day;

(c) are forbidden over open-air assemblies of persons; and

(d)are forbidden over built-up areas, except where necessary for take-off and landing.

(11) Only essential crew members, including those persons assigned to carry out in-flight inspections, may be carried on board the aircraft during flights conducted in terms of a proving flight authority.

(12) Where a proving flight authority is issued in respect of an aircraft of a new design, or of which the originally-approved design has undergone major modification, the first flight or flights shall be conducted by a pilot with the appropriate test flight rating.

(13) With the approval of the Director, the flight or flights referred to in subregulation (12), the owner of the aircraft, if suitably qualified, may carry out additional proving flights. For the purpose of this subregulation, where the 'owner' consists of more than one natural person, one of these persons shall be designated by the test pilot to carry out the proving flights.

(14) The owner, referred to in subregulation (13), shall be a licensed pilot, holding the appropriate category and class rating, and having been converted on type by an appropriately rated flight instructor.

(15) Apart from any conversion training, which may be required in terms of subregulation (14), no flight training may be conducted on an aircraft, operated in terms of a proving flight authority.

(16) Where the limitations for flight still have to be established, such proving flight or flights shall be carried out by a pilot with the appropriate test flight rating.

(17) The final proving flight for the issue of an authority to fly shall be carried out by a pilot with the appropriate test flight rating who, if applicable, shall be the pilot who carried out the proving flights, referred to in subregulation (16).

1.6.2 The pilot reported that the aircraft had 20 litres of fuel prior to the accident. The fuel consumption for this aircraft is 10 litres per hour.

Engine:

Manufacturer/Model	HKS 700E
Serial Number	101231
Part Number	TBD
Hours Since New	3.8
Hours Since Overhaul	TBO not yet reached

Propeller:

Manufacturer/Model	Powerfin 75F
Serial Number	TBD
Part Number	TBD
Hours Since New	3.8
Hours Since Overhaul	TBO not yet reached

1.7. Meteorological Information

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

Wind Direction	090	Wind Speed	4 kt	Visibility	CAVOK
Temperature	18°C	Cloud Cover	CAVOK	Cloud Base	N/A
Dew Point	10°C	QNH	Unknown		

1.8. Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as required by the Regulator (SACAA) for the aircraft type. There were no recorded defects with the navigational equipment prior to the flight.

1.9. Communication

1.9.1 The aircraft was equipped with standard communication equipment as required by the Regulator for the aircraft type. There were no recorded defects with the communication equipment prior to the flight.

1.10. Aerodrome Information

Aerodrome Location	The Coves
Aerodrome Status (Licensed/Registered/Unlicensed)	Registered
Aerodrome Co-ordinates	S25°46'42,0" E027°46'36.0"
Aerodrome Altitude	3885 feet
Runway Headings	36
Runway Dimensions	900m
Runway Used	36
Runway Surface	Grass
Approach Facilities	Nil
Radio Frequency	125.8

1.11. Flight Recorders

1.11.1 The aircraft was not fitted with a cockpit voice recorder (CVR) or a flight data recorder (FDR), and neither was required by regulation to be fitted to this type of aircraft.

1.12 Wreckage and Impact Information

1.12.1 The pilot experienced a rough running engine, and about five seconds later, the engine stopped. The pilot elected to execute a forced landing on a ploughed field. After touch down, the aircraft came to rest in an inverted position. The accident occurred approximately 1nm from the take-off airfield.



Figure 3: The aircraft with damage to the wing. (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 there was no damage to the cockpit and cabin areas which could have caused fatal injuries to the pilot.

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 proving flight which was conducted under the provisions of Part 24 of the Civil Aviation Regulations (CAR) 2011 as amended.

1.18 Additional Information

1.18.1 To be discussed in the final report.

1.19 Useful or Effective Investigation Technique

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 particular 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.

2.1.1 The pilot was initially issued a National Pilot Licence (Aeroplane) on 28 March 2001, and revalidation was carried out on 8 January 2020 with an expiry date of 7 January 2022. The pilot was issued a Class 2 aviation medical certificate on 30 October 2019 with an expiry date of 31 October 2021.

2.1.2 The aircraft was issued a Certificate of Registration (CoR) on 2 December 2020. The aircraft was issued a Proving Flight Authority to Fly on 15 February 2021 with an expiry date of 15 February 2022.

2.1.3 The private flight was conducted under the provisions of Part 94 of the CAR 2011 as amended and in visual flight rules (VFR) by day.

- 2.1.4 The pilot reported that the aircraft had 20 litres of fuel prior to the accident.
- 2.1.5 The pilot reported that 30 minutes into the flight, he experienced a rough running engine before it stopped.
- 2.1.6 The pilot made an unsuccessful forced landing on a ploughed field following the engine stoppage. The aircraft sustained substantial damage.

3. On-going Investigation

- 3.1 The AIID investigation is on-going and the investigator/s 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**