

**PRELIMINARY ACCIDENT REPORT**

**Accident and Incident Investigations Division**

Accident  
- Preliminary Report -  
AIID Ref No: CA18/2/3/10376



**Figure 1:** The ZS-UJM aircraft. (Source: FlightZone Aviation Photography)

Description:

The pilot and the passenger on-board the Jodel F12 aircraft registered ZS-UJM took off on a private flight from Springs Aerodrome (FASI) in Gauteng province. The ZS-UJM was amongst the aircraft that conducted several fly passes for photographers to take pictures. During one of the fly passes, which was conducted above Runway 14 and into the wind, ZS-UJM suffered a structural failure (wooden structure) and both wings folded upwards and separated from the fuselage before the aircraft impacted the grass-covered area next to the runway. Both occupants on-board the aircraft were fatally injured. The aircraft was destroyed.

## Occurrence Details

<b>Reference Number</b>	: CA18/2/3/10376
<b>Occurrence Category</b>	: Accident (Category 1)
<b>Type of Operation</b>	: Private (Part 94)
<b>Name of Operator</b>	: Private
<b>Aircraft Registration</b>	: ZS-UJM
<b>Aircraft Make and Model</b>	: Jodel F12
<b>Nationality</b>	: South African
<b>Place</b>	: Springs Aerodrome (FASI), Gauteng Province
<b>Date and Time</b>	: 14 October 2023 at 0653Z
<b>Injuries</b>	: Two people on-board were fatally injured
<b>Damage</b>	: 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) of the South African Civil Aviation Authority (SACAA) was notified of a fatal accident involving a Jodel F12, which occurred at Springs Aerodrome in Gauteng province on 14 October 2023 at 0653Z. 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 the full investigation. The investigator dispatched to the accident site for this occurrence. 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:*

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

**Notes:**

1. *Whenever the following words are mentioned in this report, they shall mean the following:*  
*Accident — this investigated accident*  
*Aircraft — the Jodel F12 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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<b>Abbreviation</b>	<b>Description</b>
°	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
AME	Aircraft Maintenance Engineer
AMO	Aircraft Maintenance Organisation
AP	Approved Person
ATF	Authority to Fly
CAR	Civil Aviation Regulations
CAVOK	Ceiling and Visibility OK (for VFR flight)
cm	Centimetres
C of R	Certificate of Registration
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
FASI	Springs Aerodrome
FDR	Flight Data Recorder
ft	feet
GPS	Global Positioning System
hPa	Hectopascal
hp	Horsepower
IIC	Investigator-in-charge
kg	kilogram(s)
kt	knots
kW	Kilowatt
lbs	Pounds
m	Metres
METAR	Meteorological Aerodrome Report
mph	Miles per hour
MTOW	Maximum Take-off Weight
PIC	Pilot-in-command
PPL	Private Pilot Licence
QNH	Barometric Pressure Adjusted to Sea Level
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
Sq ft	Square feet
TBO	Time Between Overhaul
UTC	Universal Co-ordinated Time
VFR	Visual Flight Rules
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, 14 October 2023, a group of photographers gathered at Springs Aerodrome (FASI) for the Central East Rand Photographic Society congress. The event, which was aimed at offering a unique experience, included professionals from various industries. Prior to the commencement of the congress, several photographers took the opportunity to photograph the aircraft that were on static display, as well as several aircraft that were conducting fly passes. This was pre-arranged with different aircraft owners and pilots.
- 1.1.2 The owner/pilot of the Jodel F12 aircraft registered ZS-UJM was amongst the aircraft that were conducting fly passes in a south-easterly direction over the grass-covered Runway 14 at FASI. The pilot was accompanied by a passenger during this private flight. The aircraft flew straight and level before the pilot pulled up. Shortly after the pilot initiated the pull-up, the main spar which is composed of a wooden structure, failed and both wings folded upwards and separated from the fuselage. Due to the gyroscopic effect of the propeller which was turning in a clockwise direction (looking at it from inside the cockpit), the fuselage rolled in the opposite direction (left) and impacted the grass-covered area next to Runway 14.
- 1.1.3 The wreckage spread in a straight line over a distance of 98 metres (m). The right-wing structure first impacted the ground, followed by the left wing and then the main fuselage. The aircraft was destroyed and the two occupants on-board the aircraft were fatally injured.
- 1.1.4 The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 26°15'02.50" South 028°24'02.95" East, at an elevation of 5 340 feet (ft).

### 1.2 Injuries to Persons

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

Note: Other means people on the ground.

### 1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed during the in-flight break up, followed by ground impact.

### 1.4 Other Damage

1.4.1 No other damage was caused.

### 1.5 Personnel Information

1.5.1 Pilot-in-command (PIC)

Nationality	South African	Gender	Male	Age	68
Licence Type	Private Pilot Licence (PPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	30 September 2024 (Class 2)				
Restrictions	VML – Valid only with Correction for Defective Distant, Intermediate and Near Vision VNL - Valid only with Correction for Defective Near Vision				
Previous Accidents	<ol style="list-style-type: none"><li>1. On 8 July 2004, the pilot was involved in an accident near Syferfontein Aerodrome (FASY) when he executed a forced landing after the engine of ZS-UJM failed in-flight. The pilot was seriously injured in the accident and the aircraft was extensively damaged (AIID reference number CA18/2/3/7830).</li><li>2. On 29 July 2017, the pilot was involved in another accident with the same aircraft when he lost directional control during landing on Runway 03 at FASI when the right rudder cable failed. The aircraft veered off to the left of the runway and rolled over before it came to rest in an inverted attitude. The aircraft sustained substantial damage. There were three occupants on-board, and none was injured (AIID reference number CA18/2/3/9632).</li></ol>				

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

#### Flying Experience:

Total Hours	2 053.7
Total Past 90 Days	5.4
Total on Type Past 90 Days	5.4
Total on Type	Unknown

- 1.5.2 The pilot's flying hours entered in the table above were obtained from the documentation he had submitted to the Regulator during the last renewal of his pilot licence on 7 September 2023. According to the aircraft flight folio that was recovered from the accident site (not up to date) and the Tachometer reading, an additional 5.4 hours were flown with the aircraft. By the time this report was concluded, the pilot's logbook(s) were not obtained yet.

## 1.6 Aircraft Information

- 1.6.1 Jodel F12 aircraft (Source: [www.mannaaviation.com](http://www.mannaaviation.com))

The Falconar F12A Cruiser is a Canadian amateur-built aircraft, designed by Chris Falconar and originally produced as a kit by Falconar Avia. It is a development of the Falconar F11 Sporty which is, in turn, a variant of the Jodel D11.

The F12 features a cantilever low-wing, two-seats in side-by-side configuration, an enclosed cockpit that is 112 centimetres (cm) wide, fixed conventional landing gear or, optionally, a tricycle landing gear and a single engine.

The aircraft is made from wood, with its flying surfaces covered in doped aircraft fabric. It has an 8.5 metres (m) (28 feet) span wing, with a wing area of 13m<sup>2</sup> (140 sq ft). The aircraft's recommended engine power is 112 to 134 kilowatts (kW) (150 to 180 hp), and engines that have been used include a 112 kW (150 hp) Lycoming O-320 and the 134 kW (180 hp) Lycoming O-360 four-stroke powerplants. Construction time from the supplied kit is 1 200 hours.

#### Airframe:

Manufacturer/Model	Jodel F12A	
Serial Number	ZS-WFB-1	
Year of Manufacture	1977	
Total Airframe Hours (at time of accident)	366.39	
Last Inspection (Hours & Date)	361.16	24 August 2023
Hours Since Last Inspection	5.23	
CRS Issue Date	24 August 2023	
ATF (Issue Date & Expiry Date)	7 September 2021	30 September 2024
C of R (Issue Date) (Present Owner)	15 April 2002	



Type of Fuel Used	Avgas
Category	Amateur built
Previous Accidents	<ol style="list-style-type: none"> <li>1. On 8 July 2004, the aircraft was involved in an accident following an engine failure on which it sustained extensive damage.</li> <li>2. On 29 July 2017, the aircraft was again involved in an accident when the right rudder cable failed and the pilot lost directional control upon landing. The aircraft veered off the runway and rolled to the left, resulting in substantial damage.</li> </ol>

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

According to available information, the two-leaf springs that are part of the main landing gear were removed from the aircraft after the annual inspection was certified on 24 August 2023. They were taken to a service provider for bending. On 25 September 2023, the two-leaf springs and the main wheels were reinstalled to the aircraft. This work was performed by persons who did not possess aircraft maintenance qualifications of either being an aircraft maintenance engineer (AME) or an approved person (AP) as per the provisions of Part 44.01.4. Also, there was no dual check that was conducted by an aircraft maintenance organisation (AMO), AME or AP on the aircraft as required by Subpart 4 of Part 66 of the CAR 2011.

There was no flight folio entry with reference to the work that was performed as per the provisions of Part 44.01.13 of the CAR 2011.

**Engine:**

Manufacturer/Model	Lycoming O-320-B1A
Serial Number	A67318
Hours Since New	366.39
Hours Since Overhaul	TBO not yet reached

**Propeller:**

Manufacturer/Model	Ivo Prop
Serial Number	VF-4401
Hours Since New	366.39
Hours Since Overhaul	TBO 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 FASI on 14 October 2023 at 0600Z.

FASI 140600Z AUTO 15006KT //// // ///// 15/04 Q1026=

Wind Direction	150°	Wind Speed	6kt	Visibility	9999m
Temperature	15°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	4°C	QNH	1026hPa		

## 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 The aircraft crashed at FASI next to the grass-covered runway orientated 14/32.

Aerodrome Location	Springs	
Aerodrome Status	Licensed	
Aerodrome GPS coordinates	26°15'00.00" South, 028°24'00.00" East	
Aerodrome Elevation	5 340 feet	
Runway Headings	03/21	14/32
Dimensions of Runway Used	1 600m x 18m	554m x 20m
Heading of Runway Used	14	
Surface of Runway	Grass	
Approach Facilities	Runway lights, PAPI's	
Radio Frequency	122.40 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

1.12.1 Following the in-flight structural failure, the wreckage was spread in a straight line on the grass surface on the right of Runway 14 at FASI. The right wing was the first structure in the sequence of break up, it was followed by the left wing and the main fuselage, empennage structure and the engine. The wreckage was spread over a distance of 98m.



**Figure 2:** Drone camera footage depicting the wreckage distribution. (Source: Drone Ops)



**Figure 3:** The right wing.



**Figure 4:** The left wing.



**Figure 5:** The main wreckage.



**Figure 6:** The engine in an inverted attitude with the propeller severed from the crankshaft.

### **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 pre- or post-impact fire.

### **1.15 Survival Aspects**

1.15.1 The accident was not considered survivable due to the destruction of the cockpit/cabin area during the in-flight break up and the subsequent ground impact.

### **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 which was conducted in accordance with the provisions of Part 94 of the CAR 2011. The pilot was also the owner of the aircraft.

1.17.2 The last annual inspection that was conducted on the aircraft prior to the accident flight was certified on 24 August 2023 by an AP.

## 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

#### The pilot

2.2.1 The pilot had a Private Pilot Licence (PPL). The pilot was initially issued the licence on 28 November 1983 by the Regulator. His renewed licence was issued by the Regulator on 7 September 2023. The pilot had the aircraft type endorsed on his licence.

2.2.2 The pilot was issued a Class 2 aviation medical certificate on 5 September 2023 with an expiry date of 30 September 2024.

2.2.3 According to available evidence, the pilot was involved in two previous aircraft accidents with the same aircraft.

### The aircraft

- 2.2.4 The last annual inspection that was conducted on the aircraft prior to the accident flight was certified on 24 August 2023 at 361.16 airframe hours by an AP.
- 2.2.5 The aircraft was re-issued an Authority to Fly (ATF) on 14 September 2023 with an expiry date of 30 September 2024.
- 2.2.6 The aircraft was issued a Certificate of Registration (C of R) under the present owner on 15 April 2002.
- 2.2.7 The aircraft was issued a Certificate of Release to Service (CRS) on 24 August 2023, which was valid until 23 August 2024 or at 461.16 airframe hours, whichever comes first.
- 2.2.8 According to the Tachometer, the aircraft had flown 5.23 hours since the last annual inspection. The last entry in the flight folio was when the pilot flew from FASI to New Tempe Aerodrome (FATP). There was no date entered in the flight folio for the accident flight.
- 2.2.9 The main landing gear on this aircraft was removed after the last annual inspection was certified. The work was conducted by persons who had no aircraft maintenance qualifications. Also, no dual inspection was conducted by an AMO, AME or AP as per the provisions of Part 44.01.4.
- 2.2.10 There was no flight folio entry with reference to the removal of the landing gear as required by the provisions of Part 44.01.13.
- 2.2.11 The aircraft was involved in two previous accidents. During the accident on 8 July 2004, the aircraft sustained extensive damage, but was reconstructed. During the second accident on 29 July 2017, the aircraft came to rest in an inverted attitude next to the runway, and was again repaired.

### Environment

- 2.2.12 Weather conditions indicated good visibility with no clouds at FASI at the time. The prevailing wind was 150° at 6 knots.

### Aerodrome

- 2.2.13 FASI is a licensed aerodrome. There is no Airport Rescue and Fire Fighting (ARFF) service based at FASI and there are no air traffic control (ATC) personnel at the aerodrome.

### **3. ON-GOING INVESTIGATION**

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

### **4. APPENDICES**

- 4.1 Appendix 1: Extracts from the SA Civil Aviation Regulations 2011 as amended.

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



## Appendix 1

Extracts from the SA Civil Aviation Regulations 2011 as amended.

### **Airworthiness**

**24.01.2** (1) A non-type certificated aircraft, other than an aircraft classified in regulation [24.01.1 \(2\) \(h\)](#) to [\(j\)](#), may only be considered to be airworthy if that aircraft has—

- (a) been issued with an authority to fly or a proving flight authority or special flight permit, as the case may be in terms of this Part;
- (b) been maintained in accordance with the provisions of Part 44;
- (c) no known condition which could make it unsafe for flight;

### **"Persons to carry out maintenance**

**44.01.4** (1) No person may carry out maintenance on an amateur built aircraft or a production-built non-type certificated aircraft, or any component thereof, unless such person—

- (a) is appropriately rated or approved on type by the Director or the organisation designated for the purpose in terms of part 149, as the case may be, to carry out maintenance; or
  - (b) carries out the maintenance under the prescribed supervision of a person authorised by the Director or by the organisation referred to in paragraph (a). A dual check of the maintenance carried out must be performed by a person referred to in subparagraph (a); or
  - (c) is the owner of the aircraft provided that an appropriately rated approved AMO, AME or Approved Person, rated in accordance with subpart 4 of part 66, performs a dual check on the maintenance which was carried out; or
  - (d) is an appropriately rated approved AMO, AME or approved person, rated in accordance with subpart 4 of part 66.
- (2) (a) Components and parts intended to be used on non-type certificated aircraft may be fabricated by a person or organisation not licensed in terms of part 66 or part 145.
- (b) The owner of the aircraft must provide the Director, or the organisation designated for the purpose in terms of part 149, as the case may be, with evidence that the components or parts meet the minimum specification for the component or part as specified by the Original Equipment Manufacturer.

(c) An appropriately rated approved AMO, AME or approved person, rated in accordance with subpart 4 of part 66 shall sign off the component or part in the appropriate logbook."

**"Release to Service**

**44.01.13**

(1) The release to service for a non-type certificated aircraft shall either;

(a) be an entry in the flight folio; or

(b) be a separate form contained in the aircraft document folder.

(2) An entry to the following effect shall be made:

.....

"Aircraft Registration:

Aircraft type:

Serial No.:

"I hereby certify that I am satisfied that the above-mentioned aircraft and all its equipment are in every way serviceable for flight and that all maintenance has been carried out in accordance with the Civil Aviation Regulations of 2011, as amended, and the aircraft's Accepted Maintenance Schedule. This certificate lapses at a total of..... hours of ..... flight time or on..... (date),

whichever occurs first, unless the aircraft is involved in an accident or becomes unserviceable, in which case the certificate is invalid for the duration of the period".

Signed:

Licence No.:

Date:

"

## **Overhaul, repair and substitution of major components**

**44.01.16** (1) Overhaul of a Class I or Class II product and repairs to the primary structure of an aircraft, its engine(s) or propeller(s) shall be signed out by an appropriately rated approved AMO, AME or approved person, in terms of subpart 4 of part 66.

### **Part 1 of the CAR, Definitions**

**Class II product** means—

- (a) a major component of a Class I product, including wings, fuselages, empennage assemblies, landing gears, power transmissions, control surfaces and installed equipment, the failure of which will jeopardise the safety of a Class I product; or

**“Major repair”** means a repair—

- (a) which, if improperly done, may appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or
- (b) which is not done according to accepted practices or cannot be done by elementary operations;