SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division Accident and Incident Investigations Division Form Number: CA 12-57

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10484										
Classification	Accident			**Date**	29 August 2024			**Time**	1025Z		
Type of Operation	Private (Part 94)										
Location											
Place of Departure	Rhino Park Airfield, Gauteng Province			Place of Intended Landing				Secunda Aerodrome (FASC), Mpumalanga Province			
Place of Occurrence	During landing on Runway 29 at Secunda Aerodrome (FASC)										
GPS Co-ordinates	Latitude	26°31'24.65" S		Longitude	29°10'18.38" E			Elevation	5 261ft		
Aircraft Information											
Registration	ZU-PPL										
Make; Model; S/N	Shadow Lite CC; Jabiru J430 (Serial Number: 524)										
Damage to Aircraft	Minor					Total Aircraft Hours		1 605.7			
Pilot-in-command											
Licence Type	Commercial Pilot Licence (CPL)			Gender	Male			Age	41		
Licence Valid	Yes	Total Hours		374		Total Hours on Type		63.2			
Total Hours 30 Days	63.2			Total Hours on Type Past 90 Days				63.2			
People On-board	1 + 2	**Injuries**	0	**Fatalities**	0	**Other (on ground)**		0			

What Happened

On Thursday morning, 29 August 2024, a pilot and two passengers on-board a Jabiru J430 aircraft with registration ZU-PPL were on a private flight from Rhino Park Airfield in Pretoria East, Gauteng province, to Secunda Aerodrome (FASC) in Mpumalanga province. 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 stated that he conducted a pre-flight inspection, and no abnormalities were found. The aircraft had 56 litres (l) of Avgas 100LL fuel in the tanks. The aircraft departed Rhino Park Airfield at 0925Z, and the flight to FASC was uneventful. Before landing, the pilot observed the windsock which favoured Runway 29. The aircraft approached with the flaps extended to 40 degrees and, during touch down, a sudden gust of wind from the left lifted the wing. The aircraft floated above the runway for approximately 900 metres (m) before it eventually touched down on the runway which is 1 100m in length. The pilot applied the brakes to bring the aircraft to a stop, but without success. He then switched off the master switch and, thereafter, lost directional control. The aircraft veered off to the left and exited the runway near the threshold of Runway 11 during which the left main gear (LMG) leg broke off, approximately midspan (See Figure 2). The aircraft came to rest in a left-wing low

attitude on the grass area next to the runway and facing south. The aircraft sustained minor damage. No person on-board the aircraft was injured.

The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 26°31'24.65" South 29°10'18.38" East, at an elevation of 5 261 feet (ft).

Figure 1: The aircraft as it came to rest. (Source: Operator)

Figure 2: The aircraft with the broken left main gear. (Source: Operator)

Figure 3: Damage on the composite propeller leading edge. (Source: Operator)

Meteorological Information

The weather information in the table below was obtained from the pilot questionnaire.

Wind Direction	180°	Wind Speed	14 knots	Visibility	9999 m
Temperature	13ºC	Cloud Cover	CAVOK	Cloud Base	Nil
Dew Point	5°	QNH	Unknown		

The meteorological aerodrome report (METAR) was obtained from the South African Weather Service (SAWS) website, issued for Ermelo Airfield (FAEO) on 29 August 2024 at 1000Z. FAEO is located 51 nautical miles (nm) east of FASC.

FAEO 291000Z 08014KT 9999 OVC010 11/08 Q1027=

Crosswind Component (Source: e6bx.com/wind-components/)

The crosswind component at the time of the flight was calculated at 13.16 knots from the left. A Jabiru J 430 aircraft has a maximum crosswind velocity of 14 knots demonstrated at full flap setting. A pilot would have no challenge landing with 14 knots crosswind.

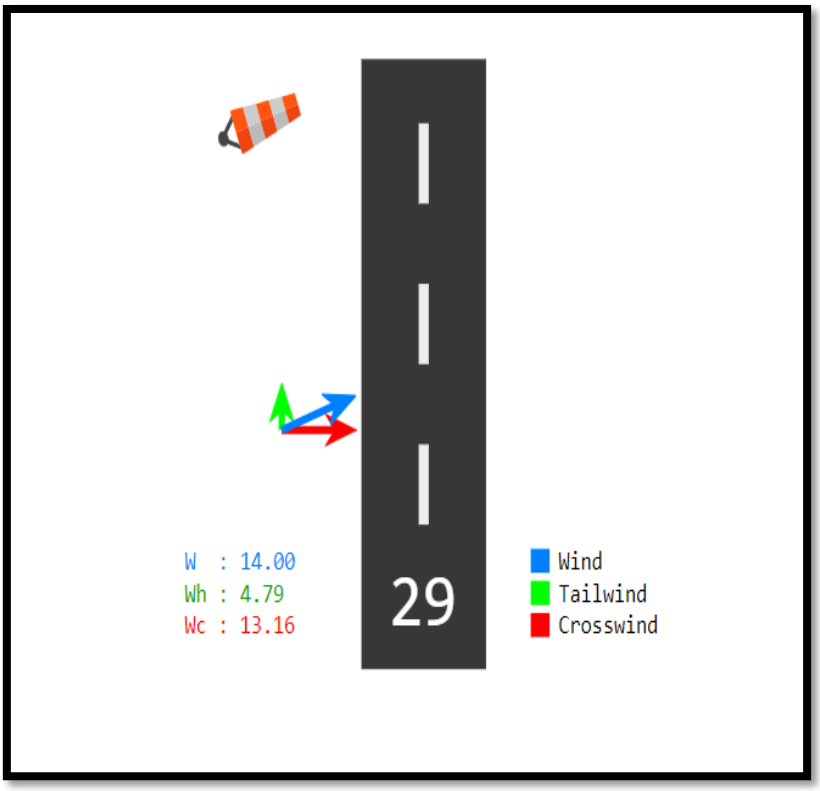


Figure 4: Crosswind calculation. (Source: e6bx.com/wind-components)

Figure 5: Jabiru J430 crosswind limit. (Source: Jabiru J430 POH)

Aerodrome

FASC is an unlicensed aerodrome in Mpumalanga province with a single runway. The asphalt runway is orientated 11/29; it is 1 100m long and 18m wide.

Aircraft Description (Source: Pilot's Operating Handbook [POH])

The Jabiru J430 aircraft is powered by a 120 horsepower (hp) Jabiru 3300 six-cylinder engine. The main landing gear (MLG) comprises two separate composite beams which are bolted to the fuselage at the top and centre, and to the wheel stub at the bottom. The nose gear is a welded steel, trailing arm assembly with a rubber spring system. The nose wheel is steerable with the rudder pedals. Nose wheel and main wheel speed fairings (wheel spats) are optional equipment. For all models discussed in this manual, the main undercarriage has the same general arrangement: a laminated composite spring forms the leg which is bolted to the fuselage at one end and the main wheels at the other.

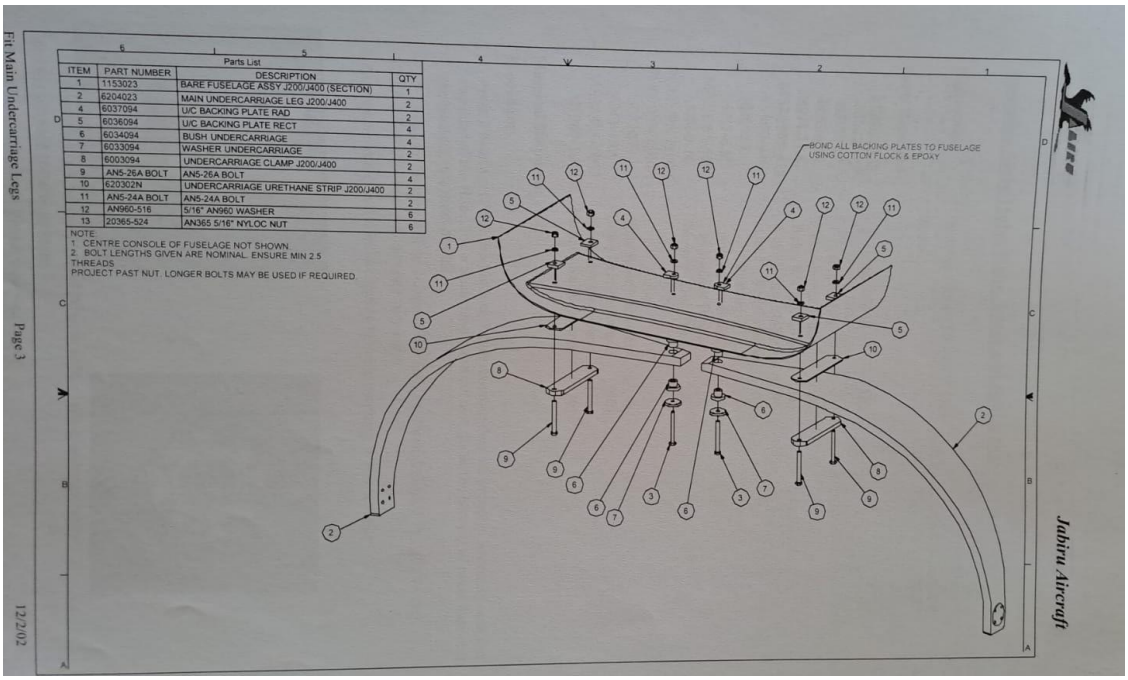
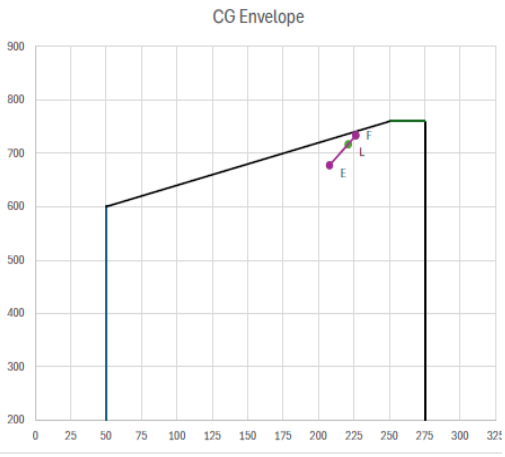


Figure 6: Illustration of the main landing gear legs. (Source: Jabiru Illustrated Parts Catalogue [IPC])

Weight and Balance Calculation (Source: Pilot)

	Items	Weight (kg) From W&B in POH	Moment (kgmm) From W&B in POH
1	Empty Aircraft from W&B report	404.5	62854.1
2	Front seats (arm : -12mm)	198	-2376
3	Rear seats (arm - 1034mm)	70	72380
4	Front seat baggage (arm - 670mm)	0	0
5	Rear seat baggage (arm - 1570mm)	5	7850
6	Total with empty tanks	677.5	140708.1
7	Usable Fuel (arm 451 mm)	56	25256
8	Fuel at landing	39.2	17679.2
9	Total with Fuel (Take Off)	733.5	165964.1
10	Total with Fuel (Landing)	716.7	158387.3



GC p E	208	677.5
GC p F	226	733.5
GC p L	221	716.7

Notes	
	Fuel value in kg
	Weight inside limit
	Moment inside limit

I. The maximum certificated take-off mass for the aircraft as stipulated in the Pilot's Operating Handbook (POH) is given as 760 kilograms (kg). The aircraft weighed 733.5kg on take-off from Rhino Park Airfield. About 16kg (22 litres) of fuel was used during the flight; the aircraft weighed 716.7kg upon landing at FASC.

II. The aircraft was operated within its allowable weight and Centre of Gravity (C of G) as indicated above.

The inspection results of the aircraft by the approved person (AP) post-accident at FASC indicated damage to the LMG leg brake caliper, the propeller blade (1), and the ventral fin. The brakes were modulated, and they operated satisfactory. The AP conducted the runout tests on both the crankshaft and propeller flange; both were found to be within limits in accordance with (IAW) the Jabiru engine manual JEM002-11, paragraph 9, 29. The LMG leg was temporarily repaired. The damaged propeller and the LMG leg brake caliper were replaced. The engine was subjected to a ground run, and it met all parameters in accordance with (IAW) the operator's manual. No vibrations were observed or felt during the engine run. After the temporary repairs to the LMG leg, the Regulator (SACAA) granted the operator a special flight permit IAW Part 24.02.4 of the CAR, and the aircraft was ferried to the AP's facility at Spring Aerodrome (FASI) in Gauteng province.

Findings

1. Personnel Information

1.1 The pilot had a Commercial Pilot Licence (CPL) that was initially issued by the Regulator on 23 February 2021. The CPL was reissued on 5 November 2023 with an expiry date of 31 October 2024. The pilot had flown a total of 374 hours, with 63.2 hours flown on the aircraft type.

1.2 The pilot was issued a Class 1 aviation medical certificate on 12 September 2023 with an expiry date of 30 September 2024 with no restrictions.

2. Aircraft Information

2.1 The last annual inspection of the aircraft before the accident flight was certified on 23 July 2024 at 1 563.5 airframe hours. The aircraft had accrued 42.2 hours since the annual inspection.

2.2 The aircraft had a valid Authority to Fly (ATF) that was initially issued on 10 July 2018. The ATF was reissued on 3 July 2024 with an expiry date of 31 July 2025.

2.3 The aircraft's Certificate of Registration (C of R) was issued to the present owner on 3 September 2021.

2.4 The aircraft was issued a Certificate of Release to Service (CRS) on 23 July 2024 with an expiry date of 22 July 2025 or at 1 613.5 airframe hours, whichever occurs first.

2.5 The aircraft was affected by a crosswind of 13.16 knots (maximum is 14 knots) and tailwind of 4.79 which exacerbated floating of the aircraft above the runway.

2.6 The aircraft was operated within its allowable weight and Centre of Gravity (C of G) envelope.

Probable Cause

A sudden gust of wind lifted the aircraft during the landing sequence; consequently, the aircraft floated and landed deep after which it veered off to the left of the runway. It came to a stop on the grass area next to the runway.

Contributing Factor

- Incorrect crosswind landing technique.
- The decision not to perform a go-around.

Safety Action(s)
None.
Safety Message and/or Safety Recommendation/s
None.
About this Report
The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation, and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desktop inquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence. *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.*
Purpose
In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, 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.
Disclaimer
This report is produced without prejudice to the rights of the AIID, which are reserved.

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