

**LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL**

<b>Reference Number</b>	CA18/2/3/10476					
<b>Classification</b>	Accident	<b>Date</b>	7 August 2024	<b>Time</b>	1045Z	
<b>Type of Operation</b>	Training (Part 141)					
<b>Location</b>						
<b>Place of Departure</b>	Rhino Park Aerodrome, Gauteng Province		<b>Place of Intended Landing</b>	Rhino Park Aerodrome, Gauteng Province		
<b>Place of Occurrence</b>	During the landing roll on Runway 27 at Rhino Park Airfield, Gauteng Province					
<b>GPS Co-ordinates</b>	<b>Latitude</b>	25° 49' 59.54" S	<b>Longitude</b>	028° 32' 32.75" E	<b>Elevation</b>	4775 ft
<b>Aircraft Information</b>						
<b>Registration</b>	ZU-NEE					
<b>Make; Model; S/N</b>	Shadow Lite CC; Jabiru J430 (Serial Number: 570)					
<b>Damage to Aircraft</b>	Substantial			<b>Total Aircraft Hours</b>	2237.7	
<b>Pilot-in-command</b>						
<b>Licence Type</b>	Commercial Pilot Licence (CPL)		<b>Gender</b>	Male	<b>Age</b>	24
<b>Licence Valid</b>	Yes	<b>Total Hours</b>	363.7		<b>Total Hours on Type</b>	87.1
<b>Total Hours 30 Days</b>	34.8		<b>Total Flying on Type Past 90 Days</b>	52.8		
<b>People On-board</b>	2 + 0	<b>Injuries</b>	0	<b>Fatalities</b>	0	<b>Other (on ground)</b> 0
<b>What Happened</b>						
<p>On Wednesday, 7 August 2024, a flight instructor and a student pilot on-board a Jabiru J430 with registration ZU-NEE departed from Rhino Park Aerodrome in Gauteng province to conduct circuit training (take-offs and landings) at the same aerodrome. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The instructor reported that they conducted the pre-flight checks and no anomalies were noted. At approximately 1030Z, the aircraft took off from Runway (RWY) 27 and two uneventful circuits were conducted. During the third circuit, the aircraft landed hard. As a result, the left main landing gear strut broke, the nose gear detached, and the propeller struck the ground as the aircraft veered off several metres to the left of the runway before it rested.</p> <p>Post-flight inspection revealed that the main left gear delaminated after the hard landing which led to the left main gear separation. The instructor and the student pilot were not injured during the accident sequence. The instructor reported that the student pilot commenced the flare and reduced power prematurely; his (instructor's) intervention was not timeous to prevent the hard landing.</p>						



**Figure 1:** The accident site. (Google Earth Maps)



**Figure 2:** The aircraft as it came to rest. (Source: Operator)



**Figure 3:** Damage to the propeller and the broken main left landing gear strut. (Source: Operator)



**Figures 4 and 5:** Delamination and damage to the left main gear. (Source: Operator)



**Figure 6:** Damage to the landing gear. (Source: Operator)

#### Meteorological Information

The meteorological aerodrome report (METAR) was obtained from the South African Weather Service (SAWS) website, issued for Waterkloof Airforce Base (FAWK) on 7 August 2024 at 1000Z. FAWK is located approximately 17 nautical miles (nm) west of Rhino Park Aerodrome.

FAWK 071000Z AUTO 34006KT CAVOK 17/04 Q1026=

Wind Direction	340°	Wind Speed	6 knots	Visibility	9999 m
Temperature	17°C	Cloud Cover	CAVOK	Cloud Base	CAVOK
Dew Point	4°C	QNH	1026hPa		

#### Aircraft Performance: Crosswind (Source: Pilot's Operating Handbook (POH))

The crosswind component during the accident was calculated at 5.64 knots (kts), which was within the aircraft's demonstrated limit. Weather conditions were not a contributory factor to this accident.

According to the pilot questionnaire, the approach speed was 65 kts with 30 degrees flap setting as per the POH recommendations (Figure 7).

### 4.3.11. LANDING

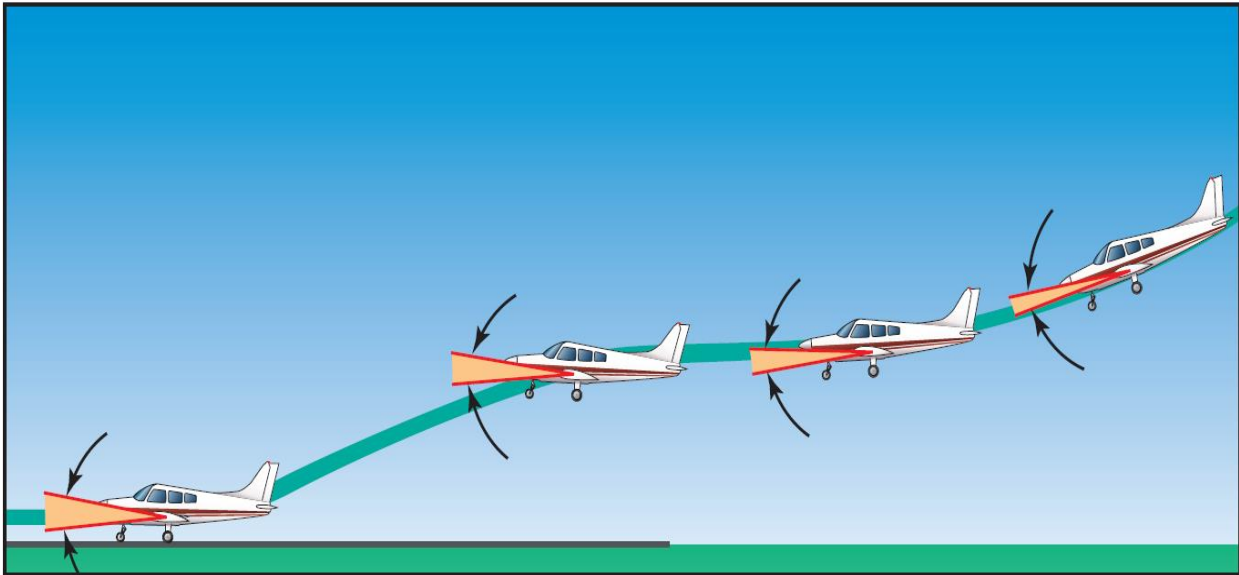
Normal Landing		
1	Airspeed	65 KIAS
2	Wing Flaps	FULL DOWN ( below 70 KIAS)
3	Touchdown	MAIN WHEELS FIRST
4	Landing Roll	LOWER NOSE WHEEL GENTLY
5	Braking	MINIMUM REQUIRED
Short Field Landing		
1	Airspeed	65 KIAS
2	Wing Flaps	FULL DOWN ( below 70 KIAS)
3	Power	REDUCE to idle as obstacle is cleared
4	Touchdown	MAIN WHEELS FIRST

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**Figure 7:** Landing figures according to the POH.

High Round-out (Flare) (Source: FAA-8083-3A)

*Sometimes when the airplane appears to temporarily stop moving downward, the round out has been made too rapidly and the airplane is flying level, too high above the runway. Continuing the round out would further reduce the airspeed, resulting in an increase in angle-of-attack to the critical angle. This would result in the airplane stalling and dropping hard onto the runway. To prevent this, the pitch attitude should be held constant until the airplane decelerates enough to again start descending. Then the round-out can be continued to establish the proper landing attitude. This procedure should only be used when there is adequate airspeed. It may be necessary to add a slight amount of power to keep the airspeed from decreasing excessively and to avoid losing lift too rapidly. Although back-elevator pressure may be relaxed slightly, the nose should not be lowered any perceptible amount to make the airplane descend when fairly close to the runway unless some power is added momentarily. The momentary decrease in lift that would result from lowering the nose and decreasing the angle-of-attack may be so great that the airplane might contact the ground with the nosewheel first, which could collapse. When the proper landing attitude is attained, the airplane is approaching a stall because the airspeed is decreasing and the critical angle of attack is being approached, even though the pitch attitude is no longer being increased.*



**Figure 8:** Rounding out too high. (Source: FAA-8083-3A)

## Findings

### 1. Personnel Information

- 1.1 The instructor had a Commercial Pilot Licence (CPL) that was initially issued on 22 June 2023. It was re-issued on 9 July 2024 with an expiry date of 30 June 2025. The pilot had a Grade 3 instructor rating with 94.2 instructor hours on the aircraft type.
- 1.2 The instructor was issued a Class 1 aviation medical certificate on 19 June 2024 with an expiry date of 30 June 2025 with no restrictions. The instructor was adequately qualified and licensed to undertake the flight.
- 1.3 The student pilot had a Student Pilot Licence that was issued on 13 June 2021 with an expiry date of 30 May 2025. The student pilot had completed a total of 81.1 hours, of which 8.5 hours were on the accident aircraft type. The student pilot initially started flight training on a C172 aircraft.
- 1.4 The student pilot was issued a Class 2 aviation medical certificate on 28 May 2021 with an expiry date of 28 May 2026 with no restrictions.
- 1.5 The approved training organisation (ATO) was issued an Approved Training Organisation Certificate by the Regulator (SACAA) on 15 July 2021 with an expiry date of 30 April 2026. The instructor and the student pilot were adequately licensed to conduct the flight.

## 2. Aircraft Information

2.1 The last 100-hour inspection of the aircraft was conducted and certified on 16 January 2024 at 1995.4 airframe hours. The last mandatory periodic inspection (MPI) was conducted on 23 July 2024 at 2195.1 airframe hours. The last 25-hour inspection was conducted on 2 August 2024 at 2223.8 airframe hours. The aircraft had accrued 13.9 hours after the 25-hour inspection.

2.2 The aircraft had a valid Authority-to-fly (ATF) Certificate that was initially issued on 18 November 2019. The ATF was renewed on 26 February 2024 with an expiry date of 28 February 2025. The aircraft's Certificate of Registration (C of R) was issued to the present owner on 14 December 2023.

2.3 The aircraft was previously involved in an accident after a runway excursion during a training flight at the same aerodrome on 15 November 2019. The AIID reference number CA18/2/3/9835 was issued for this accident.

2.4 The aircraft was issued a Certificate of Release to Service (CRS) on 24 July 2024 with an expiry date of 28 February 2025 or at 2295.1 airframe hours, whichever occurs first.

2.5 The aircraft was maintained by an aircraft maintenance organisation (AMO) with an AMO Certificate that was issued by the Regulator (SACAA) on 31 August 2023 with an expiry date of 31 August 2024.

2.6 The aircraft landed hard due to the incorrect air speed and power mismanagement by the student pilot (flaring too early) which resulted in the aircraft impacting the runway hard with the left main landing gear; the landing gear failed during the landing roll.

## 3. Environment

Good weather conditions prevailed at the time of the flight; the weather did not contribute to this accident.

### **Probable Cause(s)**

The aircraft landed hard after the student pilot flared too high, followed by the main landing gear failure and runway excursion to the left.

### **Contributing Factor(s)**

Poor landing technique.

<b>Safety Action(s)</b>
None.
<b>Safety Message and/or Safety Recommendation/s</b>
None.
<b>About this Report</b>
<p><i>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.</i></p> <p><i>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.</i></p>
<b>Purpose</b>
<p><i>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.</i></p>
<b>Disclaimer</b>
<p><i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i></p>

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