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| <b>AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY</b> |
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|  |   |                              |                          |                             |                          |
|--|---|------------------------------|--------------------------|-----------------------------|--------------------------|
|  |   | Reference:                   |                          | CA18/2/3/9835               |                          |
| <b>Aircraft Registration</b>   | ZS-NEE  | <b>Date of Accident</b>      | 15 November 2019         | <b>Time of Accident</b>     | 0956Z                    |
| <b>Type of Aircraft</b>  | Jabiru J430   |                              | <b>Type of Operation</b> | Training (Part 141)         |                          |
| <b>Pilot-in-command Licence Type</b>   | Commercial Pilot Licence (CPL)  |                              | <b>Age</b>               | 28                          | <b>Licence Valid</b> Yes |
| <b>Pilot-in-command Flying Experience</b>  | Total Flying Hours  | 407                          | Hours on Type            | 130                         |                          |
| <b>Last Point of Departure</b>   | Rhino Park Aerodrome, Gauteng Province  |                              |                          |                             |                          |
| <b>Next Point of Intended Landing</b>  | Rhino Park Aerodrome, Gauteng Province  |                              |                          |                             |                          |
| <b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b> |   |                              |                          |                             |                          |
| On Runway 09 at Rhino Park Aerodrome, GPS: 25°49'59.72" S; 028°32'26.96" E, elevation:1456m AMSL                     |   |                              |                          |                             |                          |
| <b>Meteorological Information</b>  | Wind: 120°/08 kt; Visibility: 10km; Cloud: CAVOK; Temperature: 29°C; Dew Point:07°C; QNH:1014   |                              |                          |                             |                          |
| <b>Number of People On-board</b>   | 1 + 1   | <b>No. of People Injured</b> | 0                        | <b>No. of People Killed</b> | 0                        |
| <b>Synopsis</b>  | <p>The Jabiru J430 aircraft (ZS-NEE) took off from Runway (RWY) 09 at Rhino Park Aerodrome on 15 November 2019 at 0910Z with the instructor and student pilot on-board to conduct circuit training exercises. The flight instructor reported that they had completed four uneventful circuit exercises, and on the fifth circuit exercise, he took control of the aircraft to demonstrate a crosswind landing procedure to the student pilot.</p> <p>During landing, the aircraft touched down deep on RWY 09; the instructor applied brakes, but the aircraft did not slow down quick enough, and it (aircraft) overshot the runway. As the aircraft came to a stop, the nose gear sunk into the soft sand, resulting in the propeller and the left wingtip contacting the ground.</p> <p>The two occupants were not injured during the landing sequence. The aircraft sustained damage to the left main landing gear, propeller and left wingtip.</p> <p>The investigation revealed that it was likely that the aircraft approached the aerodrome at a high speed, resulting in a deep landing on the runway at a fairly high speed and the aircraft overshot the runway.</p> |                              |                          |                             |                          |
| SRP Date:  | 11 August 2020  | Publication Date:            | 12 August 2020           |                             |                          |



| ABBREVIATION | DESCRIPTION                       |
|--------------|-----------------------------------|
| AGL          | Above Ground Level                |
| AMSL         | Above Mean Sea Level              |
| AMO          | Aircraft Maintenance Organisation |
| AP           | Authorised Person                 |
| ATF          | Authority to Fly                  |
| CAVOK        | Ceiling and Visibility OK         |
| °C           | Degree Celsius                    |
| CPL          | Commercial Pilot Licence          |
| CVR          | Cockpit Voice Recorder            |
| FAWB         | Wonderboom Aerodrome              |
| FDR          | Flight Data Recorder              |
| ft           | Feet                              |
| GPS          | Global Positioning System         |
| IFR          | Instrument Flight Rules           |
| kt           | Knots                             |
| M            | Metres                            |
| MPI          | Mandatory Periodic Inspection     |
| NM           | Nautical Miles                    |
| QNH          | Query Nautical Height             |
| RWY          | Runway                            |
| SAWS         | South African Weather Service     |
| VFR          | Visual Flight Rules               |
| VMC          | Visual Meteorological Conditions  |
|              |                                   |
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**Reference Number** : CA18/2/3/9835  
**Name of Owner/Operator** : Prellex 280 Pty Ltd  
**Manufacturer** : Shadow Lite CC  
**Model** : Jabiru J430  
**Nationality** : South African  
**Registration Marks** : ZU-NEE  
**Place** : Rhino Park Aerodrome, Gauteng Province  
**Date** : 15 November 2019  
**Time** : 0956Z

*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 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.*

**Investigation process:**

The accident was notified to the Accident and Incident Investigations Division (AIID) on 15 November 2019 at approximately 0956Z. The investigator did not dispatch to the accident site; a desktop investigation was conducted. The investigator/s co-ordinated with all authorities which were on site and initiated 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 Jabiru J430 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 be 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 South African Civil Aviation Authority (SACAA), which are reserved.*

## 1. FACTUAL INFORMATION

### 1.1. History of Flight

- 1.1.1 On 15 November 2019 at approximately 0910Z, a Jabiru J430 aircraft took off from Rhino Park Aerodrome with an instructor and a student pilot on-board for circuit training exercises at the aerodrome. The operation was conducted under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.
- 1.1.2 The flight instructor reported that during the fifth circuit exercise, he took over controls of the aircraft on final approach for Runway (RWY) 09 to demonstrate a crosswind landing to the student pilot. During landing, the aircraft touched down about 100 metres (m) from the threshold of RWY 09. The length of Rhino Park's RWY 09 is 780m and the aircraft needs 250m to stop. The instructor reported that he applied the brakes, but they were ineffective, and the aircraft did not slow down quick enough.
- 1.1.3 The instructor made zig-zag manoeuvres to bleed off the aircraft's speed, but he was not successful. The aircraft overshot the runway and continued onto the soft sand; the nose gear dug into the soft sand, resulting in the propeller and the left wing striking the ground. The aircraft came to a stop on the extended centreline of RWY 09. The instructor reported that the aircraft's brakes had failed during landing.
- 1.1.4 The two occupants disembarked the aircraft un-assisted and without injuries. The aircraft had substantial damage to the propeller, left main landing gear and left wing.
- 1.1.5 The aircraft accident occurred during daylight in visual meteorological conditions (VMC) at Global Positioning System (GPS) co-ordinates 25°49'59.72"S; 028°32'26.96"E and at an elevation of 1456m above mean sea level (AMSL).



Figure 1: Rhino Park Aerodrome. (Source: Google Maps)

### 1.2. Injuries to Persons

| Injuries | Pilot | Crew | Pass. | Other |
|----------|-------|------|-------|-------|
| Fatal    | -     | -    | -     | -     |
| Serious  | -     | -    | -     | -     |
| Minor    | -     | -    | -     | -     |
| None     | 2     | -    | -     | -     |

### 1.3. Damage to Aircraft

1.3.1 The aircraft had substantial damage to the left main landing gear, propeller and left wing.



Figure 2: Damage to the aircraft after the accident. (Source: Pilot)

### 1.4. Other Damage

1.4.1 None.

### 1.5. Personnel Information

#### Instructor Pilot Information

|                     |                                    |               |                          |     |    |
|---------------------|------------------------------------|---------------|--------------------------|-----|----|
| Nationality         | South African                      | Gender        | Male                     | Age | 28 |
| Licence Number      | 0272348236                         | Licence Type  | Commercial Pilot Licence |     |    |
| Licence Valid       | Yes                                | Type Endorsed | Yes                      |     |    |
| Ratings             | Flight Instructor and Night Rating |               |                          |     |    |
| Medical Expiry Date | 30 September 2020                  |               |                          |     |    |
| Restrictions        | Corrective Lenses                  |               |                          |     |    |
| Previous Accidents  | None                               |               |                          |     |    |

**Flying Experience:**

|                            |     |
|----------------------------|-----|
| Total Hours                | 407 |
| Total Past 90 Days         | 50  |
| Total on Type Past 90 Days | 38  |
| Total on Type              | 130 |

**Student Pilot Information**

|                     |                |               |                       |     |    |
|---------------------|----------------|---------------|-----------------------|-----|----|
| Nationality         | South African  | Gender        | Male                  | Age | 49 |
| Licence Number      | 0275500699     | Licence Type  | Student Pilot Licence |     |    |
| Licence Valid       | Yes            | Type Endorsed | Yes                   |     |    |
| Ratings             | None           |               |                       |     |    |
| Medical Expiry Date | 26 August 2020 |               |                       |     |    |
| Restrictions        | None           |               |                       |     |    |
| Previous Accidents  | None           |               |                       |     |    |

**Flying Experience:**

|                            |    |
|----------------------------|----|
| Total Hours                | 29 |
| Total Past 90 Days         | 17 |
| Total on Type Past 90 Days | 17 |
| Total on Type              | 17 |

**1.6. Aircraft Information****Airframe:**

|  |                   |       |
|--|-------------------|-------|
| Type                                       | Jabiru J430       |       |
| Serial Number                              | 570               |       |
| Manufacturer                               | Shadow Lite cc    |       |
| Date of Manufacture                        | 2008              |       |
| Total Airframe Hours (At time of Accident) | 564.1             |       |
| Last MPI (Date & Hours)                    | 11 November 2019  | 562.2 |
| Hours Since Last MPI                       | 1.9               |       |
| Authority to Fly (Issue Date)              | 21 November 2018  |       |
| C of R (Issue Date) (Present owner)        | 18 September 2019 |       |
| Operating Categories                       | Standard          |       |

**Engine:**

|                      |                 |
|----------------------|-----------------|
| Type                 | 330             |
| Serial Number        | 33A1780         |
| Hours since New      | 58.1            |
| Hours since Overhaul | TBO not reached |

**Propeller:**

|                      |                 |
|----------------------|-----------------|
| Type                 | P Prop          |
| Serial Number        | FEG6 60/53      |
| Hours since New      | 58.1            |
| Hours since Overhaul | TBO not reached |

## 1.7. Meteorological Information

- 1.7.1 The weather information was sourced from the South African Weather Service (SAWS) for 15 November 2019 at 0900Z.
- 1.7.2 The wind velocity on RWY 09 had wind components of 3-4 knots (kt) crosswind from the right and a headwind of 5kt, according to an E6B calculation.

|                |      |             |       |            |       |
|----------------|------|-------------|-------|------------|-------|
| Wind direction | 120° | Wind speed  | 08 kt | Visibility | 10 km |
| Temperature    | 29°C | Cloud cover | CAVOK | Cloud base | CAVOK |
| Dew point      | 07°C | QNH         | 1014  |            |       |

## 1.8. Aids to Navigation

- 1.8.1 The aircraft was equipped with standard navigational equipment as approved by the Regulator (SACAA) for the aircraft type. There was no record indicating that the navigation system was unserviceable prior to the accident.

## 1.9. Communication

- 1.9.1 The aircraft was equipped with standard communication equipment as approved by the Regulator for the aircraft type. There was no record indicating that the communication system was unserviceable prior to the accident.

## 1.10. Aerodrome Information

|                        |                           |
|------------------------|---------------------------|
| Aerodrome Location     | Rhino Park Aerodrome      |
| Aerodrome Co-ordinates | 25°49'59" S; 028°32'26" E |
| Aerodrome Elevation    | 1456m (AMSL)              |
| Runway Designations    | 09/27                     |
| Runway Dimensions      | 780m x 17m                |
| Runway Used            | 09                        |
| Runway Surface         | Asphalt                   |
| Approach Facilities    | None                      |

## 1.11. Flight Recorders

- 1.11.1 The aircraft was not equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), and neither recorder was required by regulation.

## 1.12 Wreckage and Impact Information

- 1.12.1 The aircraft landed approximately 100m deep on RWY 09 at Rhino Park Aerodrome. The runway length is 780m and the required landing distance and ground roll for this aircraft is 820ft/250. The instructor pilot reported that the brakes were ineffective, and the aircraft overshot the runway. The



nosewheel dug into the soft sand, and the propeller and the left wing struck the ground. The aircraft came to rest on the extended centreline of RWY 09.

1.12.2 The aircraft sustained damage to the left main landing gear, the propeller and left wing.

### 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 the cabin and cockpit areas had no damage which could have caused serious injuries to the instructor and the student pilot.

### 1.16 Tests and Research

1.16.1 An Authorised Person (AP) replaced the aircraft's brake pads after the accident. The old (removed) brake pads were compared to the new brake pads. The removed brake pads were still functional.

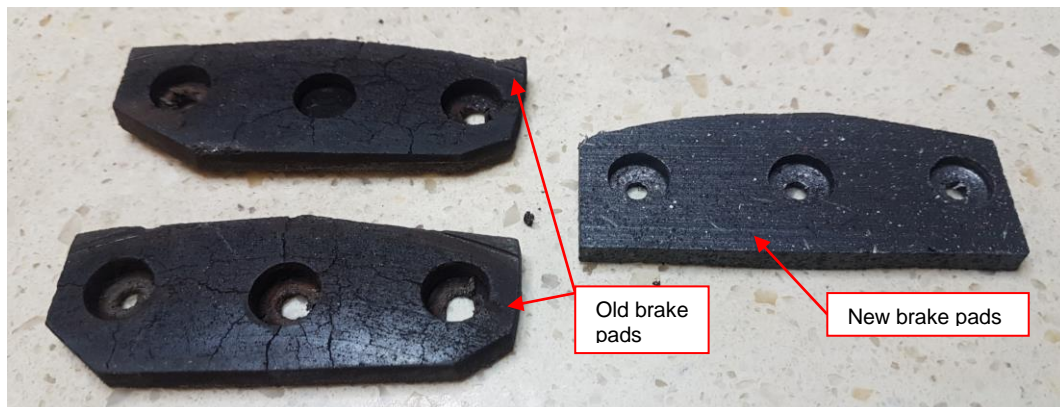


Figure 3: Two brake pads removed from the aircraft after the accident (left) and a new brake pad (right). (Source: Approved Person)

### 1.17 Organisational and Management Information

1.17.1 The aircraft maintenance organisation (AMO) was issued an approval certificate on 22 August 2019 with an expiry date of 31 August 2020.

1.17.2 The aircraft training organisation was issued a Training Approval Certificate on 21 June 2017 with an expiry date of 28 April 2022.

### 1.18 Additional Information

1.18.1 None.

## **1.19 Useful or Effective Investigation Techniques**

1.19.1 None.

## **2. ANALYSIS**

### **2.1. General**

From the evidence available, the following analysis was made with respect to this accident. These shall not be read as apportioning blame or liability to any particular organisation or individual.

### **2.2. Analysis**

- 2.2.1 The instructor pilot was issued a Commercial Pilot Licence (CPL) on 23 January 2019 with an expiry date of 31 January 2020. His last skills test was conducted on 23 January 2019. The student pilot was issued a Student Pilot Licence on 27 August 2019 with an expiry date of 26 August 2020. The student pilot had not undergone a skills test yet.
- 2.2.2 The instructor pilot's rating test was carried out on 22 March 2019 and was issued on the same day with an expiry date of 31 March 2020.
- 2.2.3 The instructor pilot was issued a Class 1 medical certificate on 29 September 2019 with an expiry date of 30 September 2020. The student pilot was issued a Class 2 medical certificate on 15 August 2019 with an expiry date of 8 May 2021.
- 2.2.4 The aircraft was issued an Authority to Fly (ATF) on 21 November 2018 with an expiry date of 18 November 2019. The aircraft had a valid Certificate of Registration issued on 18 September 2019 under the current owner.
- 2.2.5 According to available records, the aircraft's last Mandatory Periodic Inspection (MPI) was carried out on 11 November 2019 at 562.2 airframe hours. The aircraft had accumulated a total of 564.1 airframe hours at the time of the accident and had flown 1.9 hours since its last MPI.
- 2.2.6 The flight was conducted under visual flight rules (VFR) by day in VMC. There were no landing aids at Rhino Park Aerodrome.
- 2.2.7 RWY 09 had a 3-4kt crosswind and 5kt headwind.
- 2.2.8 The instructor pilot reported that he decided to demonstrate a crosswind landing during the fifth circuit exercise. The instructor reported that the aircraft landed approximately 100m deep and the brakes were not effective.
- 2.2.9 The AP found the brakes damaged, but not out of limits; and he changed them. There was no evidence that the brakes failed, however, after analysing the instructor pilot's actions (zig zag manoeuvre), the conclusion was that it was likely that the aircraft approached the aerodrome at a

high speed, resulting in a deep landing on the runway at a fairly high speed and it (aircraft) overshot the runway.

2.2.10 The investigation revealed that it was likely that the aircraft approached the aerodrome at a high speed, resulting in a deep landing on the runway at a fairly high speed, and it (aircraft) overshot the runway.

### 3. CONCLUSION

#### 3.1. General

From the available evidence, the following findings, causes and contributing factors 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.
- **Causes** — are actions, omissions, events, conditions, or a combination thereof, which led to this accident.
- **Contributing factors** — are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

#### 3.2. Findings

3.2.1 The instructor pilot was issued a Commercial Pilot Licence (CPL) on 23 January 2019 with an expiry date of 31 January 2020. His last skills test was conducted on 23 January 2019. The student pilot had not undergone the skills test yet; his licence had an expiry date of 26 August 2020.

3.2.2 The instructor pilot's Class 1 medical certificate was issued on 27 February 2019 with an expiry date of 28 February 2020. The student pilot had a Class 2 medical certificate that was issued on 15 August 2019 with an expiry date of 8 May 2021.

3.2.3 The aircraft was issued an ATF certificate on 21 November 2018 with an expiry date of 18 November 2019. The aircraft had a Certificate of Registration issued on 18 September 2019.

- 3.2.4 The aircraft's last MPI was carried out on 11 November 2019 at 562.2 airframe hours. The aircraft had accumulated a total of 564.1 airframe hours at the time of the accident and had flown 1.9 hours since its last MPI.
- 3.2.5 The flight was conducted under VFR by day in VMC. Wind velocity components were 3-4kt crosswind from the right of runway and a headwind of 5kt.
- 3.2.6 The instructor pilot reported that he decided to demonstrate a crosswind landing during the fifth circuit. He reported that the brakes were not effective during landing, which resulted in the aircraft overshooting the runway. The aircraft landed approximately 100m deep on RWY 09 and failed to stop, subsequently overshooting the runway when the brakes became ineffective.
- 3.2.7 The AP found the brakes damaged, but not out of limits; and he changed them. There was no evidence that the brakes failed, however, after analysing the instructor pilot's actions (zig zag manoeuvre), the conclusion was that it was likely that the aircraft approached the aerodrome at a high speed, resulting in a deep landing on the runway at a fairly high speed, and it (aircraft) overshot the runway.
- 3.2.8 The investigation revealed that it was likely that the aircraft approached the aerodrome at a high speed, resulting in a deep landing on the runway at a fairly high speed and it (aircraft) overshot the runway.

### **3.3. Probable Cause/s**

- 3.3.1 It was likely that the aircraft approached the aerodrome at a high speed, resulting in a deep landing on the runway at a fairly high speed, and it (aircraft) overshot the runway,

### **3.4. Contributory Factors:**

- 3.4.1 None.

## **4. SAFETY RECOMMENDATIONS**

### **4.1. General**

The safety recommendations listed in this report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this report; the AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

### **4.2. Safety Recommendation/s**

- 4.2.1 None.

**5. APPENDICES**

5.1 None.

**This Report is issued by:**

**Accident and Incident Investigations Division  
South African Civil Aviation Authority  
Republic of South Africa**