SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10508						
Classification	Accident	**Date**	6 October 2024		**Time**	1050Z	
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Rand Airport (FAGM), Gauteng Province	Place of Intended Landing	Rand Airport (FAGM), Gauteng Province				
Place of Occurrence	On Runway 13 at Baragwanath Airfield, Gauteng Province						
GPS Co-ordinates	Latitude	26°20´57” S	Longitude	027°46’28” E	Elevation	5460ft	
Aircraft Information							
Registration	ZS-OBD						
Make; Model; S/N	Cessna Aircraft Company; C172P (Serial Number: 172-75121)						
Damage to Aircraft	Substantial	Total Aircraft Hours	1 302.9				
Pilot-in-command							
Licence Type	Airline Transport Pilot Licence (ATPL)	Gender	Male	Age	48		
Licence Valid	Yes	Total Hours	14 400	Total Hours on Type	120		
Total Hours 30 Days	32.3	Total Flying on Type Past 90 Days	20				
People On-board	2+0	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Sunday morning, 6 October 2024, a flight instructor (FI) and a student pilot (SP) on-board a Cessna C172P aircraft with registration ZS-OBD took off on a training flight from Rand Airport (FAGM) to Baragwanath Airfield (FASY), both located in Gauteng province. 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.

The FI stated that the training flight was intended to assess the SP’s progress in navigating to and from the general flying area (GFA), independently. The pair had planned to start with a precautionary landing exercise at FASY. Upon their arrival at FASY, the FI broadcasted their position on frequency 122.6-Megahertz (MHz) as well as relayed their intention to join the circuit and practise precautionary landings on Runway (RWY) 13. Whilst on final approach for landing RWY 13, the SP flared the aircraft, and it bounced on touchdown. The FI took control of the aircraft and applied full power to initiate a go-around. However, when the FI announced to the SP that he had control of the aircraft, the SP neither acknowledged the handover nor relinquished the controls. At this stage, the aircraft was flying at a low speed with a slight left-bank attitude.

The SP stated that after the bounce, the FI took over the control of the aircraft but did not explicitly mention the words “I have the controls”; he simply stated, “I got it”. Thereafter, he (SP) let go of the controls. The FI stated that he was managing the situation to prevent an adverse outcome which required subtle opposite rudder input and gentle corrective manoeuvring to stabilise the aircraft. However, the SP instinctively took control again. The FI took over the controls with an assertive attitude this time as the SP’s initial pull-back of the controls had stalled the left wing. The FI further stated that the aircraft could have entered an incipient spin at a low altitude with a high-nose attitude.

The FI had little time to respond and had to rely on Upset Prevention and Recovery Training (UPRT) principles. He applied forward pressure on the controls to reverse the stall of the left wing; he followed this with a small but crucial input of the opposite rudder to achieve a level flight. Despite the attempt to recover the aircraft, it drifted significantly to the left of RWY 13 and impacted the unprepared surface of the airfield.

Figure 1: Aerial photo taken by a pilot of another aircraft in the circuit. (Source: Student pilot)

Figure 2: Final position of the aircraft. (Source:Flight instructor)

Figure 3: Front view of the aircraft. (Source: Flight instructor)

After the accident, the training school prepared a *Mitigation Protocol Based on Lessons Learned in the Accident: ZS-OBD*.

The training school enhanced its training protocols by developing specialised training modules on recovery techniques for inadvertent lift-offs and managing critical angles-of-attack. Furthermore, the training school planned to conduct regular practical sessions to reinforce these techniques. There was integration of advanced simulator sessions replicating emergency scenarios, such as unexpected lift-offs and stalls to allow safe practise in go-arounds and control recovery. It was also planned that the flight instructors would emphasise manual handling skills through exercises that build muscle memory to ensure that students are adept at using the control yoke under various conditions.

The flying school has standardised command protocols by establishing clear verbal commands for instructors during emergencies to ensure immediate and effective student compliance. Post-accident, the training school's FIs conducted detailed pre-flight briefings which focused on situational awareness and workload management. The FIs have also organised dedicated assessment days on which SPs complete tests and participate in simulations. The SPs are given constructive feedback by Fis after these assessments.

Bouncing During Touchdown (Source: FAA-airplane flying handbook chapter 8)

When the aeroplane contacts the ground with a sharp impact as the result of an improper attitude or an excessive rate of sink, it tends to bounce back into the air.

When a bounce is severe, the safest procedure is to EXECUTE A GO-AROUND IMMEDIATELY. No attempt to salvage the landing should be made. Full power should be applied while simultaneously maintaining directional control and lowering the nose to a safe climb attitude. The go-around procedure should be continued even though the airplane may descend, and another bounce may be encountered. It would be extremely foolish to attempt a landing from a bad bounce since airspeed diminishes very rapidly in the nose-high attitude, and a stall may occur before a subsequent touchdown could be made.

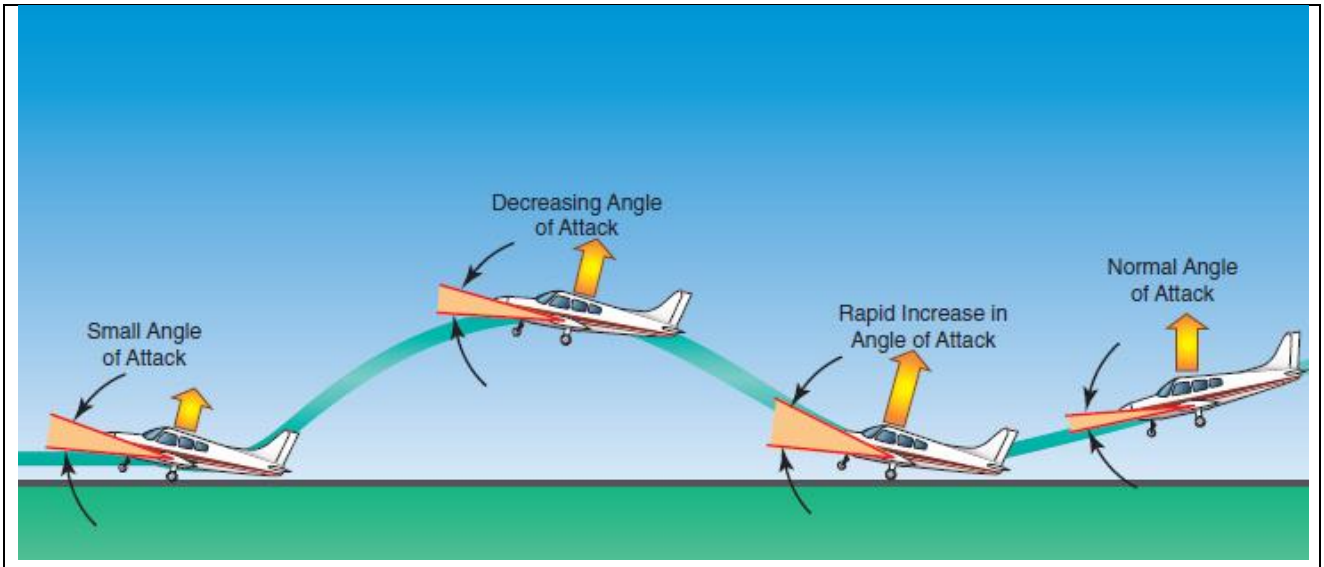

Illustration 1: A depiction of a bounce. (Source: FAA-airplane flying handbook)

Findings

1. The FI was initially issued an Airline Transport Pilot Licence (ATPL) on 29 September 2002. The licence was reissued on 12 April 2024 with an expiry date of 30 April 2025. The SP was initially issued a Student Pilot Licence (SPL) on 6 March 2022 with an expiry date of 2 April 2025.

2. The FI was issued a Class 1 aviation medical certificate on 19 January 2024 with an expiry date of 31 January 2025 with no restrictions. The FI was licensed and certified to conduct the flight. The SP was issued a Class 2 aviation medical certificate on 18 January 2022 with an expiry date of 18 January 2027 with no restrictions.

3. The last annual inspection of the aircraft was conducted and certified on 4 October 2024 at 1 328.8 total airframe hours, after which a Certificate of Release to Service (CRS) was issued with an expiry date of 4 December 2024 or at 1 414.1 hours, whichever comes first. The aircraft was properly maintained and was serviceable for this flight.

4. The Certificate of Airworthiness (C of A) was initially issued on 18 January 2011 with an expiry date of 9 January 2025.

5. The Certificate of Registration (C of R) was issued to the present owner on 19 September 2019.

6. The aircraft was flared too high, and it bounced. The FI took control of the aircraft and initiated a go-around which was unsuccessful; the left wing dropped as the aircraft drifted to the left and, subsequently, crashed.

Probable Cause(s)
The aircraft flared too high, and it bounced during touchdown. The instructor initiated a go-around which was unsuccessful.
Contributing Factor(s)
Crew miscommunication.
Safety Action(s)
The flying school had standardised command protocols by establishing clear verbal commands for flight instructors during emergencies to ensure effective compliance from student pilots. The flight instructors also conducted detailed pre-flight briefings which focused on situational awareness and workload management. Post-accident, the instructors had organised assessment days on which student pilots complete tests and participate in simulations; student pilots are given constructive feedback after these assessments.
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 desk top enquiries 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
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This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa