SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10341						
Classification	Accident	**Date**	29 June 2023		**Time**	1257Z	
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Brakpan Airfield (FABB), Gauteng Province	Place of Intended Landing	Brakpan Airfield (FABB), Gauteng Province				
Place of Occurrence	On the grass on the right side of Runway 36						
GPS Co-ordinates	Latitude	26º14’31” S	Longitude	028º18’05” E	Elevation	5 340 feet (ft)	
Aircraft Information							
Registration	ZS-OKV						
Make; Model; S/N	Piper PA22-108 (Serial Number: 22-9419)						
Damage to Aircraft	Substantial		Total Aircraft Hours	5218.69			
Pilot-in-command							
Licence Type	Student Pilot Licence		Gender	Male	Age	36	
Licence Valid	Yes	Total Hours	61.7	Total Hours on Type	31.7		
Total Hours past 30 Days	13.5		Total Flying Hours on Type Past 90 Days	18.2			
People On-board	1 + 0	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Thursday, 29 June 2023, a student pilot (SP) on-board a Piper PA-22-108 Colt aircraft with registration ZS-OKV took off on a training flight from Brakpan Airfield (FABB) in Gauteng province with the intention to land on the same airfield. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.

According to the SP, he conducted a pre-flight inspection and there were no anomalies found. The SP took off from Runway 18 and routed to Ergo Slimes Dam before he made his way back to FABB. The SP reported that upon his return to FABB whilst on final approach for Runway 36 and travelling at a speed of approximately 80 knots (kts), he noticed that the glide path was high. The SP reduced the power and tried to correct the glide angle. During touch down, the aircraft landed deep and bounced. When the wheels touched down again, the SP lost directional control of the aircraft and it veered off to the right side of the runway. The aircraft came to a stop on the grass. The nose landing gear strut collapsed and the right wing and the propeller blades contacted the ground during the sequence of events. The aircraft sustained substantial damage; however, no injuries were reported.

Figure 1: Arrow showing the direction of landing and tyre marks. (Source: Operator)

Figure 2: The final resting position of the aircraft. (Source: Operator)

- The official weather report was obtained from the South African Weather Service (SAWS). The closest weather station to the accident site is O.R. Tambo International Airport (FAOR). The weather information entered in the table below was captured on 29 June 2023 at 1300Z for FAOR.

Wind Direction	280°	Wind Speed	10 knots	Visibility	9999
Temperature	14°C	Cloud Cover	CAVOK	Cloud Base	-
Dew Point	-	QNH	1026 hPa		

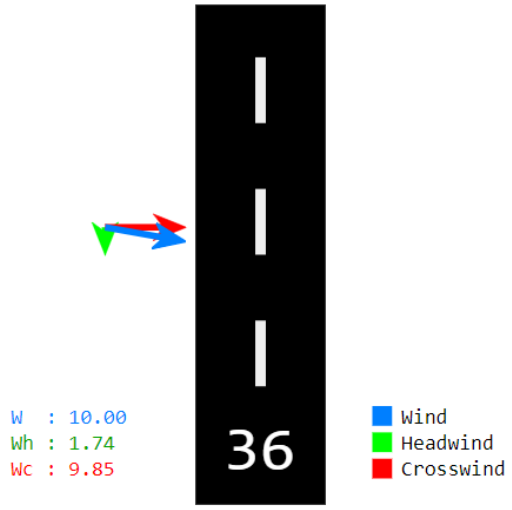

Figure 3: Wind component. (Source: https://e6bx.com/wind-components)

- The chief flying instructor (CFI) who was at the holding point of Runway 36 and engaged in run ups at the time heard the ZS-OKV join overhead the airfield. When the CFI was ready to depart, he observed ZS-OKV on final approach for Runway 36 and he waited to watch the aircraft land. The landing seemed to be progressing normally, but the aircraft was a bit high. This was not alarming because the height was recoverable. The CFI then heard the SP make a radio call "going around". The aircraft did not immediately climb, but the performance looked normal. The CFI heard the SP make another radio call "landing" and then he saw the aircraft dive towards the runway and impacted it with the nose wheel, which subsequently collapsed.

- The SP was on leave from his contract work abroad; and was nearing his flight training before he could return abroad. The SP later revealed that he had worked a night shift at his company's local branch the night before the accident.

- The Piper PA22-108 Owner's Manual states the following:

  Approach and landing

  The approach technique is as follows: trim the aircraft to 60 knots glide. Mixture should be full rich, fuel on main tank, if auxiliary tank is installed, and copper it's a heat off unless carburetor icing conditions prevail. Reduce the speed during the flare out and touch the ground in a standard three-point position approximately at hi the stalling speed.

  On the colt, the control wheel should be held back far enough to keep the plane in the nose high attitude as long as possible. This shortens the landing run by producing maximum drag on the wings. As the plane slows down, allow the nose wheel to drop to the runway and apply brakes if necessary.

Crosswind component

The aircraft cross wind component is 15 miles per hour (13 knots).

Findings

1. The SP was issued a Student Pilot Licence (SPL) on 7 October 2020 with an expiry date of 16 October 2023.

2. The SP was issued a valid Class 2 aviation medical certificate on 3 September 2020 with an expiry date of 3 September 2025.

3. The SP started flying on 29 August 2018. He went solo on 29 March 2022 after accumulating 30 dual hours. The SP was training during his contract work break (leave) abroad. The SP transferred to his current school on 22 May 2023 with 34.1 dual hours and 1.6 solo hours, which brought his total hours to 36. The SP was made to redo his type technical as well as sit for a new solo exam, which he passed.

4. The SP was possibly fatigued after having worked the night before the accident flight, which could have impacted his decision-making abilities.

5. The SP could have been under the illusion that the aircraft was not climbing after having decided that he was going to go-around because FABB RWY 36 has a rising ground which is, sometimes, matched by some aircraft's rate of climb; this would give the illusion that the aircraft was not climbing, even though it was.

6. There is a likelihood that the SP put himself under pressure to complete his training before returning to his contract work abroad.

7. The aircraft was issued a Certificate of Airworthiness (C of A) on 6 August 1999 with an expiry date of 31 August 2023. The aircraft was airworthy when it departed for the flight.

8. The aircraft was issued a valid Certificate of Registration (C of R) on 14 April 2023.

9. The approved training organisation (ATO) had a valid certificate that was issued by the Regulator (SACAA) on 20 August 2021 with an expiry date of 31 August 2026.

10. The last maintenance inspection that was conducted on the aircraft prior to the accident flight was on 30 May 2023 at 5159.21 Tachometer hours. The aircraft was issued a Certificate of Release to Service (CRS) on 31 May 2023 with an expiry date of 30 May 2024 or at 5259.21

Tachometer hours, whichever occurs first. There were no reported or recorded defects prior to the flight.

11. The aircraft maintenance organisation (AMO) had a valid AMO certificate that was issued by the Regulator (SACAA) on 1 September 2022 with an expiry date of 31 August 2023.

12. The flight was authorised accordingly in the flight authorisation sheet.

13. The aircraft approached at approximately 80 knots and the aircraft Owner's Manual advises 60 knots.

14. Recovery from a Bounce (Source: https://www.boldmethod.com/learn-to-fly/maneuvers)

Many bounced landings can still end with a smooth touch down. If you bounce, the first thing you should do is hold back pressure to keep the aircraft in a nose-high landing attitude. You might need to release some back pressure on the yoke or stick if your nose is too high, but do not push the nose down. If you force the nose down, you could land even harder than the first time, or worse, land on your nose gear. As you start descending back to the runway, you might also need to add some power to reduce your descent rate. But do not over-correct with power. Adding small amounts of power is all it takes to safely reduce your descent rate for a soft touchdown.

The next step is easy, land normally. Small to moderate bounces will often leave you just a few feet above the runway, just like if you were initiating your final touchdown flare.

If you have bounced well above the runway, go around. As you get higher ground effect diminishes, and you could find yourself getting very close to stall speed. It can be tough to judge exactly how high is "too high", and it depends a lot on the type of airplane you're flying. The safest option is, of course, to go around. When you bounce, you also need to pay close attention to how far you have floated down the runway. If you bounced due to excess airspeed, there is a good chance you have floated well beyond your intended touchdown spot. If you are well beyond your intended landing spot, or if you're uncomfortable with the amount of runway remaining, go-around and try again.

Probable Cause

The aircraft had an unstable approach and it bounced and landed with the nose wheel which subsequently collapsed. The aircraft came to a stop on the grass on the right of Runway 36.

Contributing Factor

Changing decisions from landing to go-around, and back to landing.

Safety Action(s)
Following the accident, the school grounded the SP from flying with the intention to provide further instructions on unusual situations and aeronautical decision making, as well as advised him to continue his training upon his return from the contract work abroad to avoid rushing through it.
Safety Message and/or Safety Recommendation/s
If the landing approach does not look right, pilots should opt for a go-around and attempt it again.
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 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