SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10222						
Classification	Accident	**Date**	03 February 2023		**Time**	1024Z	
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Beaufort West Aerodrome, (FABW) Western Cape Province	Place of Intended Landing	Beaufort West Aerodrome, (FABW) Western Cape Province				
Place of Occurrence	Runway 08 at Beaufort West Aerodrome (FABW)						
GPS Co-ordinates	Latitude	32°18'00.0"S	Longitude	028°00'00.0"E	Elevation	2929 ft	
Aircraft Information							
Registration	ZS-TBK						
Make; Model; S/N	Cessna, C172S (Serial Number: 172S11301)						
Damage to Aircraft	Substantial	Total Aircraft Hours	5493.2				
Pilot-in-command							
Licence Type	Student Pilot Licence (SPL) Integrated Course (IC)	Gender	Male	Age	22		
Licence Valid	Yes	Total Hours	131.0	Total Hours on Type	131.0		
Total Hours 30 Days	78.1	Total Flying on Type Past 90 Days	78.1				
People On-board	1 + 0	**Injuries**	1	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Friday afternoon, 3 February 2023, a student pilot (SP) on-board a Cessna 172 S Skyhawk aircraft with registration ZS-TBK was on his return flight to Beaufort West Aerodrome (FABW), Western Cape province, after engaging in a solo navigation exercise when the accident occurred. Visual meteorological conditions (VMC) by day prevailed at the time of the flight. The flight was conducted under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.

The SP had conducted a pre-flight check with no anomalies noted prior to the flight. He also filed a visual flight rules (VFR) flight plan with take-off from FABW at 0730Z, routing to Willowmore Aerodrome (FAWO), Aberdeen Aerodrome (FAAE) and back to FABW. Upon his return to FABW, the SP joined overhead the aerodrome at 5000 feet (ft) above ground level (AGL) and, afterwards, joined the circuit on left downwind Runway 08 (RWY08) at an elevation of 3929 ft.

The aircraft was unstable on approach and, on round out, it ballooned. Thereafter, it landed hard and bounced. The pilot lost control of the aircraft and, in that process, the wings made contact with the runway surface and the nose gear broke off. The aircraft skidded to the left of the runway before it came to a stop.

The aircraft sustained damage to the nose gear, propeller blades, engine cowling, wings and fuselage during the landing sequence. The SP was injured and was rushed to the hospital.

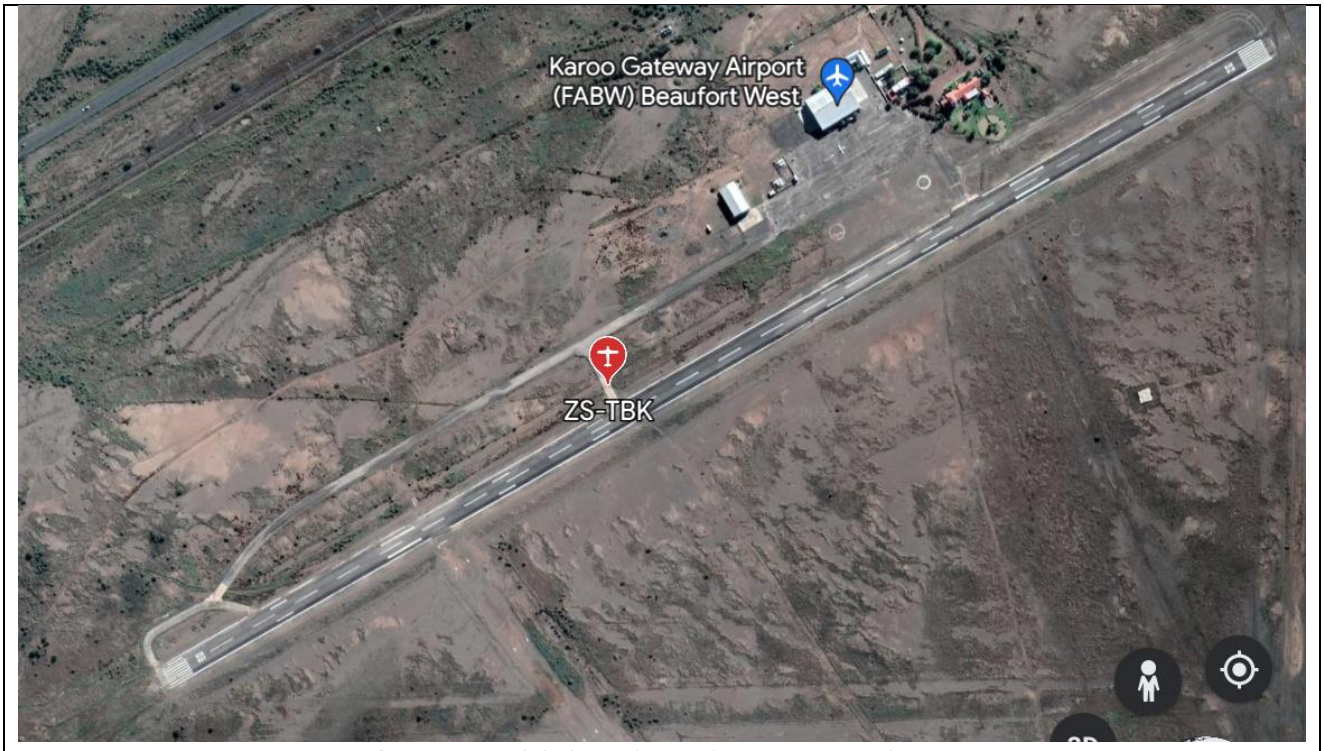

Figure 1: Aerial view of Beaufort West Aerodrome.

Figure 2: The aircraft at the accident site. (Source: Operator)

METAR FABW 031030Z 16008KT CAVOK 34/15 Q1016=

Wind Direction	160°	Wind Speed	08 kt	Visibility	10 km
Temperature	34°C	Cloud Cover	CAVOK	Cloud Base	CAVOK
Dew Point	15°C	QNH	1016 hPa		

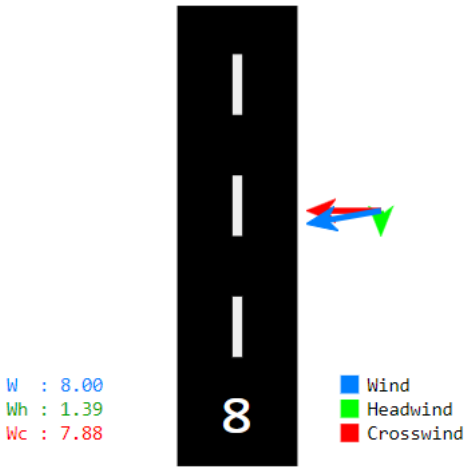

Figure 3: Weather conditions at time of the accident. (Source: Operator)

Findings

The Pilot

- The pilot was reissued a Student Pilot Licence (SPL) Integrated Course (IC) Aeroplane on 22 April 2022 with an expiry date of 21 April 2023. The C172 aircraft type was endorsed on his licence.
- The pilot had a Class 2 aviation medical certificate that was issued on 29 March 2022 with an expiry date of 28 March 2027 with a stipulation to wear corrective lenses.

Aircraft information

- The Certificate of Airworthiness (C of A) was reissued on 14 May 2021 with an expiry date of 31 May 2023. The aircraft's Certificate of Registration (C of R) was issued to the current owner on 4 September 2013.
- The last mandatory periodic inspection (MPI) prior to the accident flight was certified on 1 February 2023 at 5488.6 airframe hours. The aircraft flew a further 4.6 hours since the said inspection.
- The last maintenance inspection of the aircraft was carried out by an aircraft maintenance organisation (AMO) with a valid AMO certificate that was issued on 9 November 2022 with an expiry date of 31 October 2023.
- The aircraft was issued a Certificate of Release to Service (CRS) on 2 February 2023 with an expiry date of 1 February 2024 or at 5588.6 airframe hours, whichever occurs first unless the aircraft is involved in an accident or becomes unserviceable, in which case the certificate is invalid for the duration of the period.
- The aircraft landed with an effective crosswind of approximately 8 knots.

The following information is an extract from https://www.boldmethod.com/learn-to-fly/maneuvers/how-to-recover-from-a-balloon-on-landing-flare/

How a balloon happens

When you misjudge your sink rate during landing and the airplane is descending too fast, you have a natural reaction to sharply increase pitch attitude. If you make this mistake, you will not only stop your descent, but you will also actually initiate a climb during the flare. This is called ballooning. It is hazardous, because your height above the ground increases as your airplane approaches a stalled condition. The severity of a balloon on your airspeed and how quickly pitch attitude is increased.

How to recover from balloon

Gently relax back pressure on the yoke while still maintaining a nose-high pitch attitude, descending into a second flare, and touching down. You may have to use a slight amount of power to cushion the landing. This prevents the airplane from decelerating too rapidly and touching down hard. If your balloon is excessive, you should execute a go-around immediately.

Probable Cause

The aircraft ballooned during round out following an unstable approach; this led to a hard landing and loss of directional control.

Contributing Factor(s)

Crosswind component.

Safety Action(s)

None.

Safety Message

ATOs must develop procedures to correctly evaluate the students' ability to recover from emergency situations prior to signing them off for solo consolidation training.

This accident could have been prevented if the pilot had carried out a go-around. Thus, it is recommended that ATOs emphasise the importance of carrying out a go-around when the aircraft is not stable on approach.

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

This report is issued by:

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