SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10253						
Classification	Accident		**Date**	23 January 2023		**Time**	0951Z
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Cape Town International Airport (FACT), Western Cape Province		Place of Intended Landing	Cape Town International Airport (FACT), Western Cape Province			
Place of Occurrence	Runway 01 at Cape Town International Airport (FACT), Western Cape Province						
GPS Co-ordinates	Latitude	33°58'51.83" S	Longitude	018°36'24.40" E		Elevation	144 feet (ft)
Aircraft Information							
Registration	ZS-DVY						
Make; Model; S/N	Cessna 172 E (Serial Number: 17251654)						
Damage to Aircraft	Substantial		Total Aircraft Hours	4446.59			
Pilot-in-command							
Licence Type	Student Pilot Licence		Gender	Male		Age	20
Licence Valid	Yes	Total Hours	57.2	Total Hours on Type			57.2
Total Hours 90 Days	36.2		Total Flying Hours on Type Past 90 Days	36.2			
People On-board	1 + 0	**Injuries** 0	**Fatalities**	0	**Other (on ground)**		0

What Happened

On Monday, 23 January 2023 at 0951Z, a Cessna 172 aircraft with registration ZS-DVY was involved in an accident at Cape Town International Airport (FACT) in the Western Cape province. 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 student pilot took off on a training flight from FACT to the general flying area (GFA) with the intention to return to FACT. On his return flight whilst on final approach for a full stop landing, the indicated airspeed on the aircraft was 90-95 knots. *The prescribed airspeed in the aircraft Pilot's Operating Handbook (POH) landing procedures is 55-65 knots*. The student pilot corrected the airspeed to 56 knots and set the flaps to 30 degrees before the aircraft touched down on Runway 01. After round out (flare), the aircraft ballooned. To correct the anomaly, the student pilot applied back pressure to the control column and added power. However, the right wing dropped and impacted the ground. This caused the pilot to lose control of the aircraft. Subsequently, the nose wheel impacted the ground hard and broke off. The propeller blades struck the runway and the aircraft veered off to the right before it came to a stop on the grass, about 30m from the edge of the runway.

The aircraft sustained damage to the right-wing tip, propeller blades, nose wheel and nose gear strut. The pilot was not injured during the accident sequence.

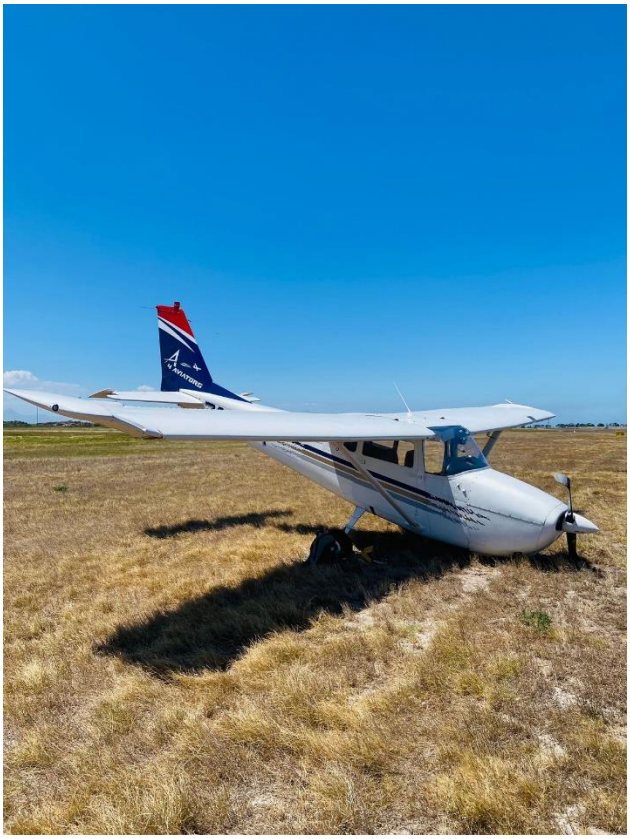

Figure 1: The aircraft as it came to rest. (Source: Operator)

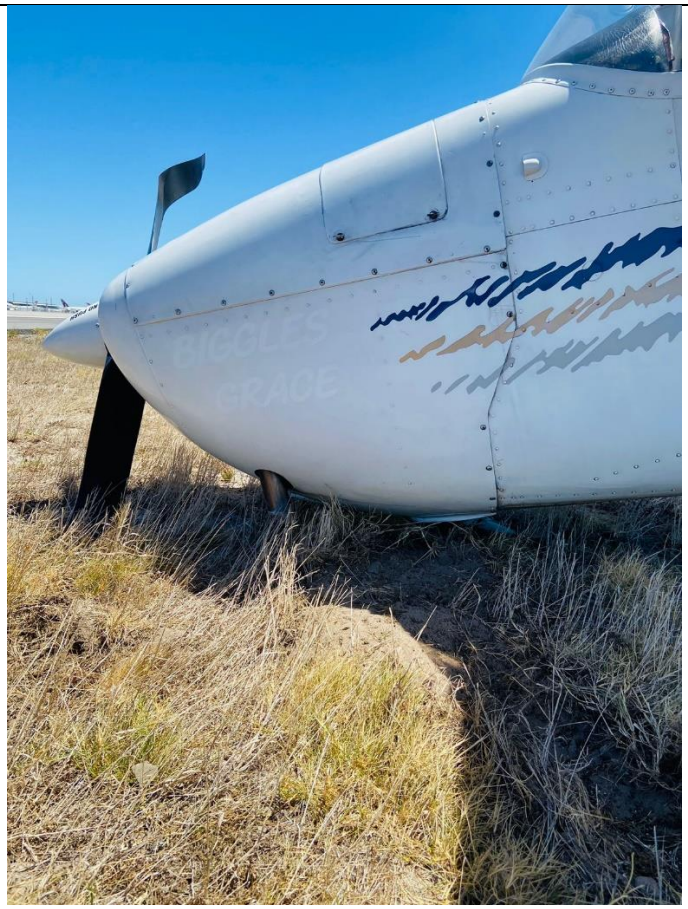

Figure 2: Close up image of the nose section. (Source: Operator)

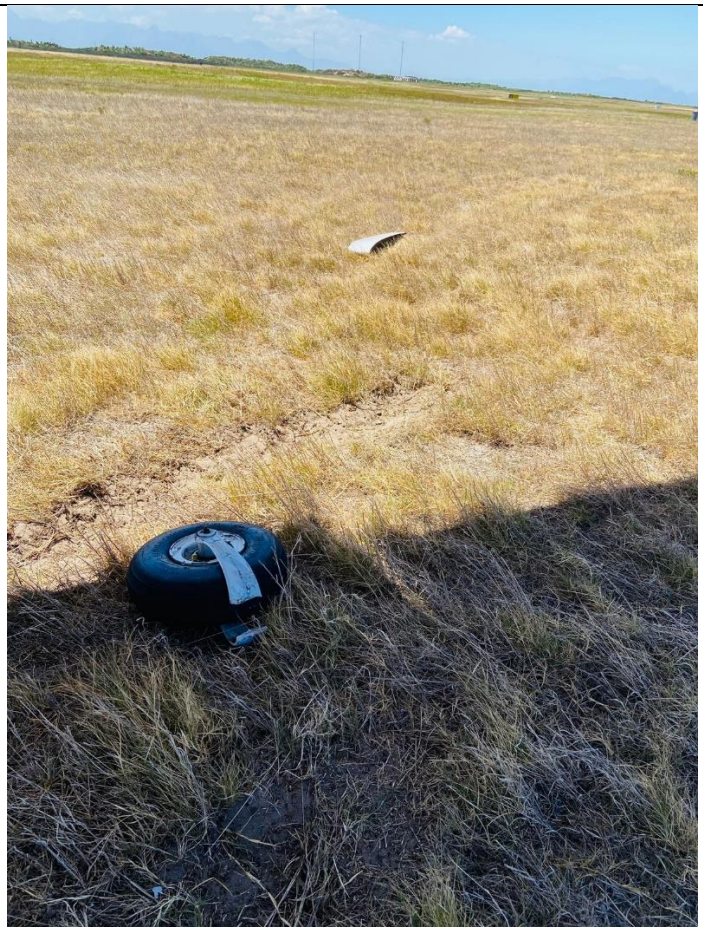

Figure 3: The detached nose wheel. (Source: Operator)

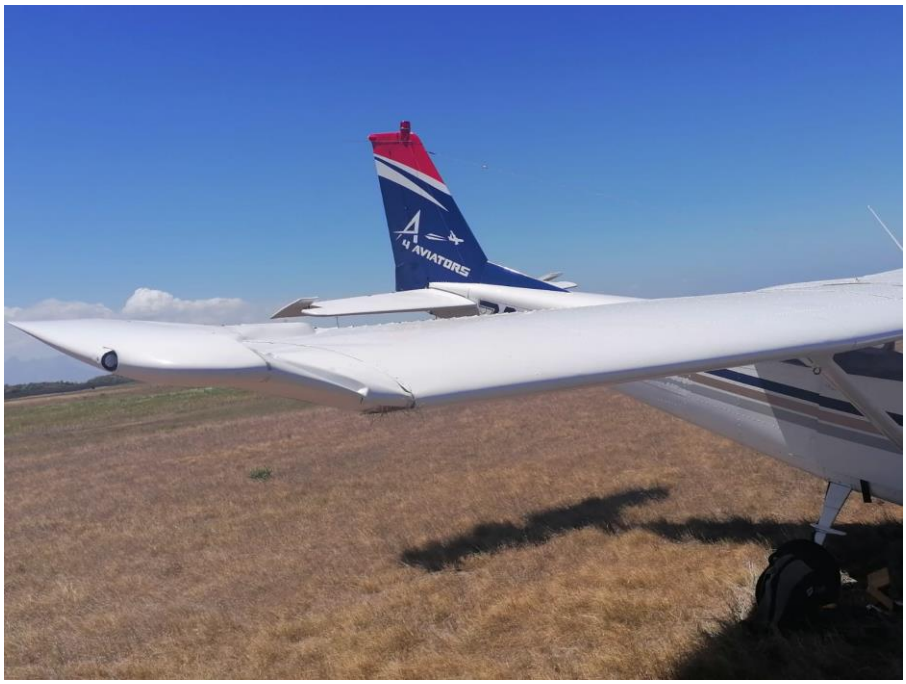

Figure 4: Damage on the right-wing tip. (Source: Operator)

- The landing configuration procedures as per the C172E POH:

LET-DOWN.

(1) Mixture -- Rich.
(2) Power -- As desired.
(3) Carburetor Heat -- As required to prevent carburetor icing.

- The take-off and landing speeds for the C172E (Source C172E POH)

Cessna 172E

SPEEDS (MPH)

Vso	52
Vs	59
Vr	60
Vx (sea level)	65
Vx (10,000 ft.)	71
Vy (sea level)	80
Vy (10,000 ft.)	77
Vfe	100
Vno	140
Vne	174
Va (2300 lbs)	122
Va (2000 lbs)	114
Va (1600 lbs)	102
Best Glide (max gross)	65
Max. Demon. X-Wind	15
Approach (Flaps UP)	70-80
Approach (Flaps DN)	65-75
Enroute Climb	80-90

- 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'll not only stop your descent, but you'll also actually initiate a climb during the flare. This is called ballooning. It's 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 quick 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.

Findings

- The student pilot was issued a Student Pilot Licence (SPL) on 14 November 2022 with an expiry date of 13 November 2023.
- The student pilot was issued a valid Class 2 aviation medical certificate on 30 September 2022 with an expiry date of 30 September 2027.
- The aircraft was issued a Certificate of Airworthiness (C of A) on 1 September 2009. The latest C of A had an expiry date of 30 November 2023.
- The aircraft was issued a Certificate of Registration (C of R) on 25 February 2021.
- The last maintenance inspection carried out on the aircraft prior to the accident flight was certified on 8 December 2022 at 4348.23 airframe hours. The aircraft had accumulated a further 98.36 airframe hours since the said inspection.
- The Certificate of Release to Service (CRS) was issued on 8 December 2022 with an expiry date of 8 June 2023 or at a total of 4448.23 hours of flight time, whichever occurs first.
- The approved training organisation (ATO) had a valid certificate that was issued by the Regulator on 1 April 2019 with an expiry date of 31 March 2024.
- The flight was accordingly authorised in the flight authorisation sheet.
- An official weather report was obtained from the South African Weather Service (SAWS). The closest weather station to the accident site was FACT. The weather information entered in the table below was captured on 23 January 2023 at 0930Z at FACT.

Wind Direction	320°	Wind Speed	15 knots	Visibility	10 000m
Temperature	26°C	Cloud Cover	-	Cloud Base	-
Dew Point	16°C	QNH	1008hPa		

- The ATO carried out remedial action with the student pilot for 3.8 hours to correct his technique on circuits, circuits in controlled airspace and emergencies in the circuit.

Probable Cause

The aircraft speed was high on approach and, during round out, the aircraft ballooned which led to loss of control.

Contributing Factor
Incorrect recovery technique used after ballooning.
Safety Action(s)
The ATO carried out remedial action with the student pilot for 3.8 hours to correct his technique on circuits, circuits in controlled airspace and emergencies in the circuit.
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
This report is produced without prejudice to the rights of the AIID, which are reserved.

This report is issued by:

Accident and Incident Investigations Division

South African Civil Aviation Authority

Republic of South Africa