SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10189						
Classification	Accident	**Date**	30 June 2022	**Time**	0800Z		
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Grand Central Aerodrome (FAGC), Gauteng Province	Place of Intended Landing	Grand Central Aerodrome (FAGC), Gauteng Province				
Place of Occurrence	On Runway 17 at Grand Central Aerodrome (FAGC)						
GPS Co-ordinates	Latitude	26°58'50.18"S	Longitude	28°08'12.11"E	Elevation	5254 ft	
Aircraft Information							
Registration	ZS-JBP						
Make; Model; S/N	Cessna 172 M (Serial Number: 172-63637)						
Damage to Aircraft	Substantial	Total Aircraft Hours	12 713.5				
Pilot-in-command							
Licence Type	Student Pilot Licence (SPL) Aeroplane	Age	35				
Licence Valid	Yes	Total Hours on Type	64.6	Total Flying Hours	64.6		
Total Hours 30 Days	9.3	Total Flying on Type Past 90 Days	21.5				
People On-board	1 + 0	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Thursday morning, 30 June 2022, a student pilot on-board a Cessna 172M aircraft with registration ZS-JBP took off on a solo navigation flight from Grand Central Aerodrome (FAGC) in Gauteng province, with the intention to return to the same aerodrome. 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 reported that the pre-flight checks were carried out, and no anomalies were found. The aircraft took off from Runway 17 and routed to Rustenburg Aerodrome (FARG), and later, to Pilanesberg Aerodrome (FAPN), both located in the North West province. The student pilot carried out touch-and-go landings at each aerodrome before routing back to FAGC.

Upon the student pilot's return to FAGC, the air traffic control (ATC) instructed her to report long final approach as Runway 17 was in use, which she acknowledged. On short final approach the aircraft experienced a slight turbulence, which caused the aircraft to swerve to the right. Whilst the aircraft was flying past the threshold of Runway 17, the student pilot brought power to idle but felt that the aircraft was too low. She then applied power again and pulled back on the control column to execute

a go-around; as a result, the aircraft's nose pointed up and the student pilot responded by pushing the control column forward to get the nose to point down and to increase the air speed. The aircraft touched down hard on the runway which caused damage to the nose gear oleo. Subsequently, the propeller blades struck the runway surface whilst the rudder counterweight separated from the aircraft. The student pilot taxied the aircraft to the parking bay without informing the ATC about the accident and without requesting assistance from the fire and rescue service.

The aircraft sustained substantial damage to the firewall, nose gear oleo, propeller blades and engine cradle, whilst the rudder counterweight separated during the accident sequence. There were no injuries reported post-accident.

When the aircraft taxied past the aircraft maintenance organisation's (AMO's) hangar on its way to the parking bay, the AMO's engineer noticed some damages on the aircraft. The engineer followed the aircraft to the parking bay where he inspected it further. He then alerted the aerodrome's fire chief about the accident, who in turn, relayed the information to the ATO instructors and ATC. The fire and rescue service personnel conducted a runway inspection. A rudder counterweight was found on the runway during the inspection.

The accident occurred during day time at Grand Central Aerodrome (FAGC) on Runway 17 and at Global Positioning System (GPS) co-ordinates determined to be 25°58′50.18″ South 28°08′12.11″ East, at an elevation of 5254 feet (ft).

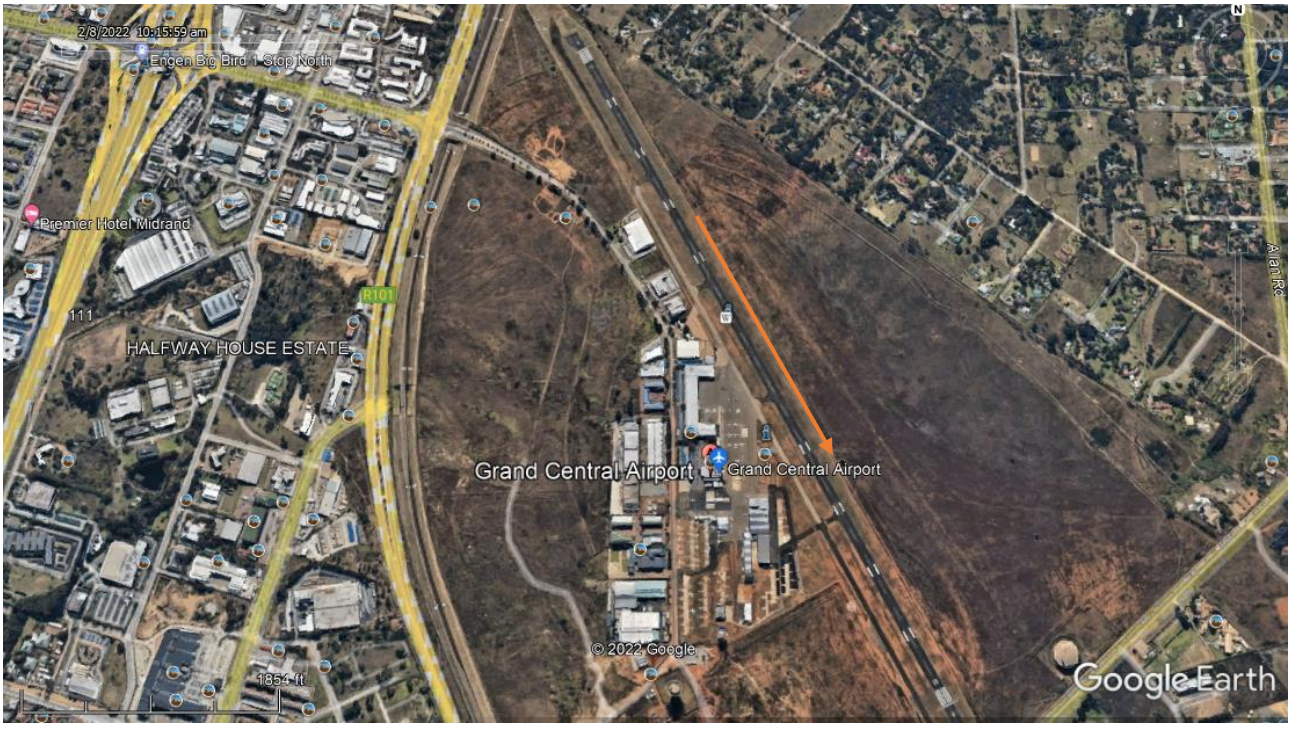

Figure 1: The orange arrow shows the landing direction of the aircraft at FAGC. (Source: Google Earth)

Figures 2 and 3: The damaged propeller blade (left) and the rudder without the counterweight that got separated (right).

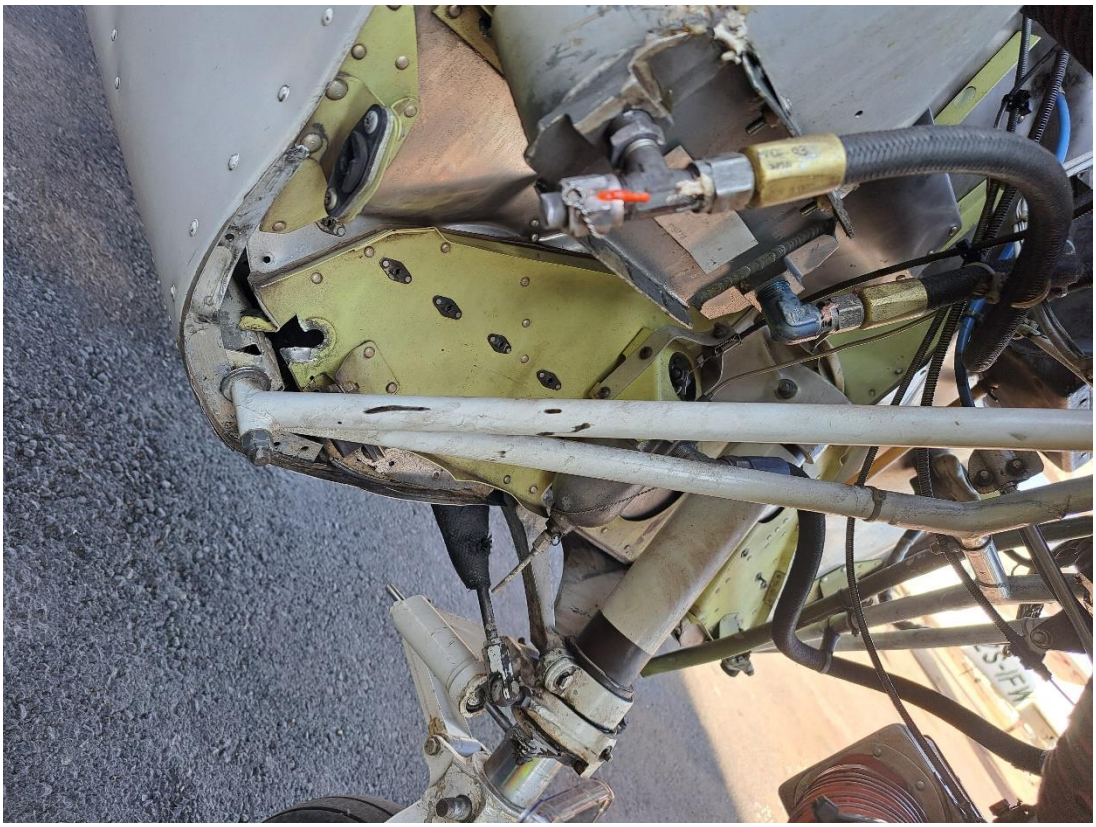

Figure 4: The damaged firewall and the deflated oleo.

Findings

1. Personnel Information

1.1 The student pilot was initially issued a Student Pilot Licence (SPL) Aeroplane on 12 February 2018. The last validation was carried out on 14 March 2021 with an expiry date of 13 March 2022. A Cessna 172 rating was endorsed on her licence. The Class 2 medical certificate was issued on 6 February 2020 with an expiry date of 31 July 2022 with no restrictions. The student pilot had a total of 64.6 flying hours and 64.6 hours on type.

2. Aircraft Information

2.1 The current owner of the aircraft was issued the Certificate of Registration (CoR) on 20 August 2010.

2.2 According to the latest Certificate of Release to Service (CRS), the aircraft's last annual inspection was carried out on 8 June 2022 at 12659.7 airframe hours. At the time of the accident, the aircraft had 12 713.5 airframe hours, and was flown a further 53.8 airframe hours since the annual inspection. The aircraft was initially issued a Certificate of Airworthiness (CoA) on 15 August 2003. The latest renewed CoA had an expiry date of 31 August 2022.

2.3 Examination of the flight folio and defect reports showed no outstanding defects that required rectification prior to the accident flight.

2.4 The last aircraft maintenance was carried out by an engineer at an approved AMO facility. The AMO had a valid AMO certificate that was issued on 31 July 2021 with an expiry date of 31 July 2022. The AMO inspected the aircraft post-accident and found nothing that could have contributed to this accident.

2.5 The flying school had a valid Approved Training Organisation (ATO) certificate effective from 18 January 2022 to 31 January 2023.

2.6 The aircraft was too low on approach and, whilst the student pilot was configuring the aircraft for a go-around, the aircraft's nose lifted too high which resulted in a stall, followed by a hard impact on the runway.

2.7 The student pilot reported turbulence on short final for Runway 17. However, there were no conditions that could have cause turbulence at the time of the flight. The South African Weather Service (SAWS) showed "*the surface wind highlighting variable low wind speeds, which suggested calm conditions. G*iven the pilot's account of 'a sudden wind shift on the runaway', this may be a result of a localised wind gust or dust devil that could happen in a stable atmosphere. This was likely a localised occurrence as there was no other station that recorded sudden wind gusts at that time. During the time of the accident, the surface winds were light and variable.

Probable Cause
The aircraft was too low on approach and, whilst the aircraft was configured for a go-around, the nose lifted too high, which resulted in a stall and the hard impact on the runway.
Contributing Factor(s)
Lack of experience.
Safety Action/s
After the accident, the following remedial action was undertaken by the student: stall recovery procedures and remedial circuit training with a Grade 2 instructor. The student pilot further carried out a stall recovery demonstration with the chief flying instructor.
Safety Message
Safety message: To prevent these types of accidents, pilots are reminded to always be vigilant during the critical stages of the flight, such as take-off and landing phases.
About this Report
The decision regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited scope, fact gathering investigation was conducted to compile this limited report and allow for greater industry awareness of potential safety issues as well as possible safety action/s that the industry might want to consider in preventing a reoccurrence. *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****.* *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.*
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This report is issued by:

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