SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10525								
Classification	Accident		**Date**	21 November 2024		**Time**	0842Z		
Type of Operation	Private (Part 91)								
Location									
Place of Departure	Grand Central Aerodrome (FAGC), Gauteng Province		Place of Intended Landing		Grand Central Aerodrome (FAGC), Gauteng Province				
Place of Occurrence	At a nursery in Glen Austin residential area, north-east of Grand Central Aerodrome (FAGC) Runway 35								
GPS Co-ordinates	Latitude	25°58'.42" S	Longitude	028°08'.09" E		Elevation	5 300 feet		
Aircraft Information									
Registration	ZS-FXX								
Make; Model; S/N	Cessna Aircraft Company; C172K Skyhawk (Serial Number: 172-58556)								
Damage to Aircraft	Substantial			Total Aircraft Hours		18 845			
Pilot-in-command									
Licence Type	Private Pilot Licence (PPL)			Gender	Male		Age	28	
Licence Valid	Yes	Total Hours		95.1	Total Hours on Type			95.1	
Total Hours 30 Days	3.8			Total Hours on Type Past 90 Days		3.8			
People On-board	1+1	**Injuries**	0	**Fatalities**	0	**Other (on ground)**		0	

What Happened

On Thursday morning, 21 November 2024, a pilot and a passenger on-board a Cessna C172K Skyhawk aircraft with registration ZS-FXX were on a private flight from Grand Central (FAGC) Aerodrome in Gauteng province with the intention to land at the same aerodrome. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

The flight authorisation sheet, dated 21 November 2024, indicated that the pilot hired the aircraft from an operator at FAGC for an hour building flight during which touch-and-go landings would be performed. The pilot stated that he conducted a pre-flight inspection of the aircraft and no anomalies were noted. The aircraft had a total of 38 gallons (143 litres [l]) of Avgas 100LL in the tanks. The pilot started the engine and allowed it to warm up until all the parameters were within the green arc. He then communicated his intention to the FAGC air traffic control (ATC) officer on the very high frequency (VHF) 122.80 Megahertz (MHz) before taxiing the aircraft to the holding point of Runway 35. The engine parameters remained within the green arc with positive fuel flow, and the pilot taxied the aircraft to the threshold of Runway 35.

The ATC officer cleared the aircraft for take-off and the pilot opened the throttle to 2 400 revolutions per minute (RPM) and commenced with the take-off run. The aircraft rotated and climbed to an altitude of 6 300 feet (ft) above mean sea level (AMSL). The pilot levelled off the aircraft and retarded the throttle to 2 200 RPM whilst flying a circuit at an airspeed of 100 knots (115 miles per hour [mph]). The pilot performed two uneventful touch-and-go landings. During the final approach of the third touch-and-go landing on Runway 35, and with the flaps extended to 20° (degrees) and at 80 mph, the aircraft floated for a while above the runway surface; it then touched down deep, almost passing the control tower building which is 900 metres (m) from the threshold of Runway 35. *Runway 35 is 1800 metres (m) long*. The pilot applied excessive brakes during the landing roll, but the aircraft could not stop on the remainder of the runway. Thereafter, the pilot selected the first notch (10°) of flaps and opened the throttle to 2 400 RPM with the intention to execute a go-around. The aircraft rotated and climbed to about 20 ft above ground level (AGL); due to insufficient air speed, the aircraft stalled and impacted the ground with its nose wheel first outside the aerodrome perimeter fence. Consequently, the nose gear strut broke and the aircraft flipped over and came to a stop in an inverted position at a nursery in Glen Austin residential area, north-east of Runway 35. The pilot turned off the ignition switch and battery isolator, as well as closed the fuel valve. Fuel leaked from the left wing's fuel filler cap. The pilot released his harness and vacated the aircraft, thereafter, he helped the passenger to vacate the aircraft. The aircraft sustained substantial damage. No person was injured. Third party damage was limited to a few plants at the nursery.

The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 24º25'.54" South 27º33'.00" East, at an elevation of 5 300ft.

Figure 1: The layout of FAGC, the direction of landing (yellow arrow) and the approximate accident site (yellow rectangle). (Source: Google Earth)

Figure 2: The aircraft at the accident site.

Figures 3 and 4: Damage on the aircraft's left and right main wheel tyres due to excessive braking.

The Aircraft Description (Source: Pilot Operating Handbook [POH])

The Cessna 172K is a four-seat, high-wing all-metal aircraft of monocoque construction. It comprises a fixed tricycle landing gear. It is powered by a four-cylinder, horizontally opposed air-cooled Lycoming O-320-E2D engine bearing serial number L-46557-27A, rated at 150 horsepower (hp) at 2 700RPM, driving a two-blade McCauley propeller, model 1C160/DTM7553 bearing serial number NJ007.

The weather information entered in the table below was obtained from the pilot questionnaire.

Wind Direction	010º	Wind Speed	5 knots	Visibility	9999 m
Temperature	27ºC	Cloud Cover	CAVOK	Cloud Base	Nil
Dew Point	7	QNH	1024		

BEFORE LANDING.

(1) Fuel Selector Valve -- BOTH.
(2) Mixture -- RICH.
(3) Carburetor Heat -- ON (apply full heat before closing throttle).
(4) Airspeed -- 70 - 80 MPH (flaps UP).
(5) Wing Flaps -- AS DESIRED.
(6) Airspeed -- 65 - 75 MPH (flaps DOWN).

Findings

2 Personnel Information

2.1 The pilot had a Private Pilot Licence (PPL) that was initially issued by the Regulator (SACAA) on 16 July 2024 with an expiry date of 30 July 2025.

2.2 The pilot was issued a Class 2 aviation medical certificate on 8 September 2023 with an expiry date of 30 September 2028.

2.3 The pilot had no restrictions on his medical certificate.

2.4 The pilot had 95.1 total flying hours on the aircraft type.

3 Aircraft Information

3.1 The last 100-hour mandatory periodic inspection (MPI) of the aircraft was conducted on 5 November 2024 at 18 821.50 airframe hours. The aircraft had accrued 24 hours since the last maintenance inspection.

3.2 The aircraft maintenance organisation (AMO) which certified the last inspection of the aircraft was issued the AMO Certificate on 31 August 2024 with an expiry date of 31 August 2025.

3.3 The aircraft had a valid Certificate of Airworthiness (C of A) that was initially issued on 28 October 1970 with an expiry date of 31 October 2025.

3.4 The aircraft's Certificate of Registration (C of R) was issued to the present owner on 14 March 2023.

3.5 The aircraft was issued a Certificate of Release to Service (CRS) on 6 November 2024 with an expiry date of 5 November 2025 or at 18 921.50 airframe hours, whichever occurs first.

3.6 The pilot did not report any mechanical malfunctions of the aircraft and had 95.1 hours of total flight experience on the aircraft type.

3.7 The aircraft's maximum take-off mass is 1 043 kilograms (kg) (2 300 pounds [lbs]). The aircraft weighed 832kg (1 836lbs) on take-off, which meant that it was operated well within its allowable weight limit at the time of the flight.

3.8 According to the POH, the aircraft's required landing distance is 407m (1 335ft), the runway length is 1 800m. The aircraft touched down deep, almost passing the control tower building which is located 900m from the threshold of Runway 35.

Probable Cause(s)

The aircraft touched down deep on Runway 35 and, during the landing roll, the pilot realised that the available runway was not adequate to bring the aircraft to a stop and the pilot executed a go-around. Consequently, the aircraft stalled due to insufficient air speed and crashed at a nursery situated in Glen Austin residential area, north-east of Runway 35.

Contributing Factor(s)

None.

Safety Action(s)

None.

Safety Message and/or Safety Recommendation/s

In the interest of safety and to avoid injury and damage to property, pilots should be vigilant during the critical phases of flight such as take-offs and landings; this accident could have been avoided if the pilot executed a go-around early after noticing that the aircraft's height and speed were high.

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 desktop inquiries 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