

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10322						
Classification	Accident	Date	3 June 2023		Time	0908Z	
Type of Operation	Private (Part 91)						
Location							
Place of Departure	Grand Central Airport (FAGC), Gauteng Province		Place of Intended Landing		Bona-Bona Airstrip, North West Province		
Place of Occurrence	Runway 35 at Bona-Bona Airstrip near Wolmaransstad, North West Province						
GPS Co-ordinates	Latitude	27° 01' 5.65" S	Longitude	26° 12' 56.3" E	Elevation	4 794 ft	
Aircraft Information							
Registration	ZS-EDI						
Make; Model; S/N	Cessna 172F (Serial Number: 172-52863)						
Damage to Aircraft	Substantial		Total Aircraft Hours		5 681.4		
Pilot-in-command							
Licence Type	Private Pilot Licence (PPL) Aeroplane		Gender	Female		Age	21
Licence Valid	Yes	Total Hours	98		Total Hours on Type	95.4	
Total Hours 90 Days	38.2		Total Flying on Type Past 90 Days		38.2		
People On-board	1 + 1	Injuries	1	Fatalities	0	Other (on ground)	0
What Happened							
<p>On 3 June 2023, a pilot and a passenger on-board a Cessna 172F with registration ZS-EDI took off on a private flight from Grand Central Airport (FAGC) in Gauteng province to Bona-Bona Airstrip in the North West province. 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.</p> <p>The pilot reported that they approached Bona-Bona Airstrip Runway 35 at 70 to 75 miles per hour (60 to 65 knots) with flaps at 20°. During the flare on Runway 35, a sudden strong left crosswind caused the aircraft to drift to the right. The aircraft touched down on the grass area next to the runway and bounced. The pilot applied full power to execute a go-around, but instead the aircraft yawed to the left towards the airstrip perimeter fence on the left of the runway. To avoid impacting the fence, the pilot raised the nose, however, the nose landing gear impacted the fence and then the ground.</p> <p>The aircraft sustained substantial damage to the propeller blades, wings, elevator, rear fuselage, and the nose gear strut which broke off. The pilot suffered minor injuries to the head; the passenger was not injured.</p>							



Figure 1: Aerial view of the accident site at Bona-Bona Airstrip. (Source: Google Earth)



Figure 2: The aircraft's resting position after the accident. (Source: Pilot)



Figure 3: The damaged perimeter fence and the broken nose gear assembly. (Source: Operator)

The pilot, through the pilot questionnaire, reported that the weather conditions were as follows: wind direction: 320° at 15 knots; temperature: 21°C. The accident site is 60 nautical miles (nm) east of Potchefstroom Airport (FAPS).

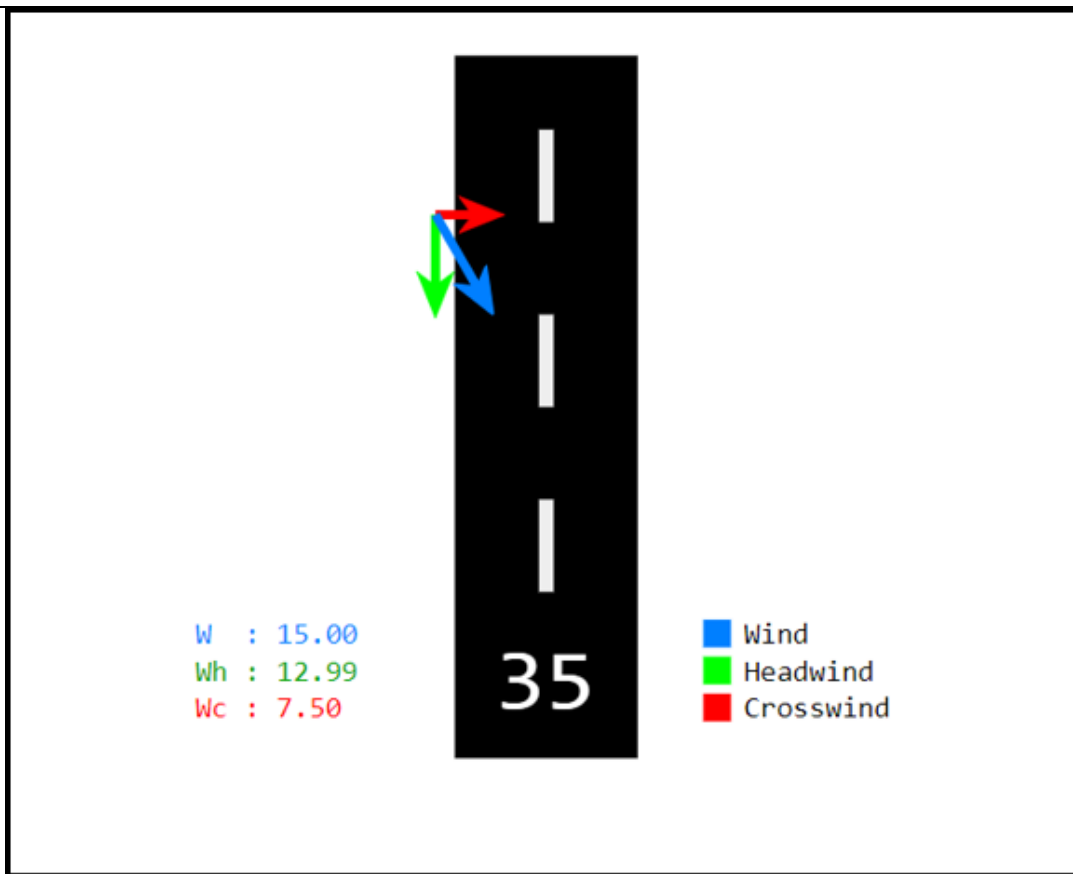


Figure 4: Crosswind component.

Weather Information for FAPS

The weather information below was obtained from the South African Weather Service (SAWS) at 0900Z on 3 June 2023.

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FAPS 030900Z AUTO 36008KT //// // // 24/02 Q1020=
FAPS 031000Z AUTO 32009G20KT //// // // 25/02 Q1020=
FAPS 031100Z AUTO 36012G24KT //// // // 25/01 Q1018=
FAPS 031200Z AUTO 33010G22KT //// // // 26/01 Q1018=
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According to the above weather report, there was a strong north to north-westerly strong wind with a gust.

Given the accounts of the pilot about a sudden crosswind, it seemed to be the only reason for the cause of this incident as there was absence of significant weather in the area.

The information below is an extract from the Cessna 172F Pilot's Operating Handbook:

BEFORE LANDING.

- (1) Fuel Selector -- "BOTH ON."
- (2) Mixture -- Rich.
- (3) Airspeed -- 70 - 80 MPH (flaps up).
- (4) Carburetor Heat -- Apply before closing throttle.
- (5) Wing Flaps -- As desired (below 100 MPH).
- (6) Airspeed -- 65 to 75 MPH (flaps down).

NORMAL LANDING.

- (1) Touchdown -- Main wheels first.
- (2) Landing Roll -- Lower nosewheel gently.
- (3) Braking -- Minimum required.

CROSSWIND LANDINGS.

When landing in a strong crosswind, use the minimum flap setting required for the field length. Use a wing-low, crab, or a combination method of drift correction and land in a nearly level attitude. Hold a straight course with the steerable nosewheel and occasional braking if necessary.

Findings

1. The pilot conducted the skills test on 26 April 2023 and was issued a Private Pilot Licence (PPL) on 16 May 2023 with an expiry date of 30 April 2024. The pilot had flown a total of 98 hours of which 95.4 hours were on the aircraft type.
2. The pilot had a Class 2 aviation medical certificate that was issued on 27 July 2022 with an expiry date of 31 July 2027 with no medical restrictions. The pilot was properly licensed and medically fit to conduct the flight.
3. The last mandatory periodic inspection (MPI) on the aircraft was conducted on 15 May 2023 at 5 640 airframe hours. The aircraft was issued a Certificate of Release to Service (CRS) on 2 June 2023 with an expiry date of 15 May 2024 or at 5740 airframe hours, whichever occurs first. The aircraft was flown a further 41.4 hours since the last MPI.
4. The aircraft had a valid Certificate of Airworthiness (C of A) which was initially issued on 15 November 2021. The C of A was last renewed on 13 October 2022 with an expiry date of 30 November 2023. The aircraft's Certificate of Registration (C of R) was issued to the current owner on 11 October 2021.
5. The aircraft touched down at a speed of between 70-75 miles per hour (60-65 kts) with flaps set at 20°. According to the Pilot's Operating Handbook, the aircraft's landing speed is between 65 and 75 miles per hour (56 and 65 kts) at a desired flap setting, therefore, the aircraft's landing speed was within the limit. The crosswind component during this landing was 7.5 knots. The POH does not indicate how much wind component can the aircraft withstand; however, 7.5 knots would not result in the aircraft being unstable.

6. It is likely that the aircraft experienced a sudden crosswind during the flare which resulted in a stall and a hard landing before it bounced; thereafter, the pilot lost directional control.
Probable Cause(s)
It is likely that the aircraft experienced a sudden crosswind during a flare which resulted in a stall and a hard landing before it bounced; thereafter, the pilot lost directional control.
Contributing Factor(s)
None.
Safety Action(s)
None.
Safety Message
To avoid injury and damage to property, pilots should always be vigilant when executing critical phases of flight such as take-offs and landings.
About this Report
<i>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.</i>
<i>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.</i>
Purpose
<i>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.</i>
Disclaimer
<i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i>

**This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa**