

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10377						
Classification	Accident	Date	20 October 2023		Time	0835Z	
Type of Operation	Training Flight (Part 141)						
Location							
Place of Departure	Wonderboom Aerodrome (FAWB), Gauteng Province		Place of Intended Landing	Wonderboom Aerodrome (FAWB), Gauteng Province			
Place of Occurrence	Runway 29 at Wonderboom Aerodrome (FAWB)						
GPS Co-ordinates	Latitude	33°11'20" S	Longitude	022°01'06.74" E	Elevation	1801 feet	
Aircraft Information							
Registration	ZS-PMK						
Make; Model; S/N	Cessna 172 M (Serial number: 172-63294)						
Damage to Aircraft	Substantial		Total Aircraft Hours	8391.7 (Tachometer)			
Pilot-in-command							
Licence Type	Student Pilot Licence (SPL)		Gender	Female		Age	22
Licence Valid	Yes	Total Hours	69.7		Total Hours on Type	69.7	
Total Hours past 30 Days	1.2		Total Flying Hours on Type Past 90 Days	1.2			
People On-board	1 + 0	Injuries	1	Fatalities	0	Other (on ground)	0
What Happened							
<p>On Friday, 20 October 2023, a student pilot (SP) on-board a Cessna 172M aircraft with registration ZS-PMK took off from Wonderboom Aerodrome (FAWB) in Gauteng province with the intention to conduct a solo flight in the general flying area (GFA) before returning to FAWB. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The SP stated that she arrived at the school on the day and prepared for the flight. She was signed out by her instructor. She then took off from Runway 06 and routed to the GFA where she conducted exercises consisting of medium level turns and steep turns. Sometime during her flight in the GFA, the press-to-talk (PTT) button which is located on her control column became faulty. The SP then used the PTT on the other control column. Once she completed the exercises, she routed back to FAWB and, as she was not cleared to enter the controlled airspace by the air traffic control (ATC) officer, she circled above the power station whilst transmitting to request joining instructions. As time went by, the SP switched back to the GFA frequency, and there was no response either. She then switched to the tower frequency again and transmitted, but still with no clearance. The SP then used her mobile phone to call the tower, but could not get through. Whilst the SP was still circling at the power station, she overheard the ATC at the tower asking the SP's chief pilot (who was flying with</p>							

another student pilot at the time) to fly to the GF and escort her back. Whilst still waiting for clearance, the SP could also hear the tower ATC asking other pilots in the vicinity if they had seen her aircraft.

The chief pilot caught up with the SP and flew alongside her aircraft on the left side; he instructed her using the radio to follow him back to FAWB. During landing on Runway 29 after touchdown, the SP did not apply enough rudder to maintain directional control and the power was not fully closed; as a result, the aircraft drifted to the left and onto the grass area during the landing roll. The aircraft kept rolling on the grass and the SP retracted the flaps with the mindset of conducting a go-around. The aircraft crossed over taxiway Charlie, bounced and flipped; it finally rested in an inverted position.

The aircraft was substantially damaged, and the pilot sustained minor cuts to her forehead.

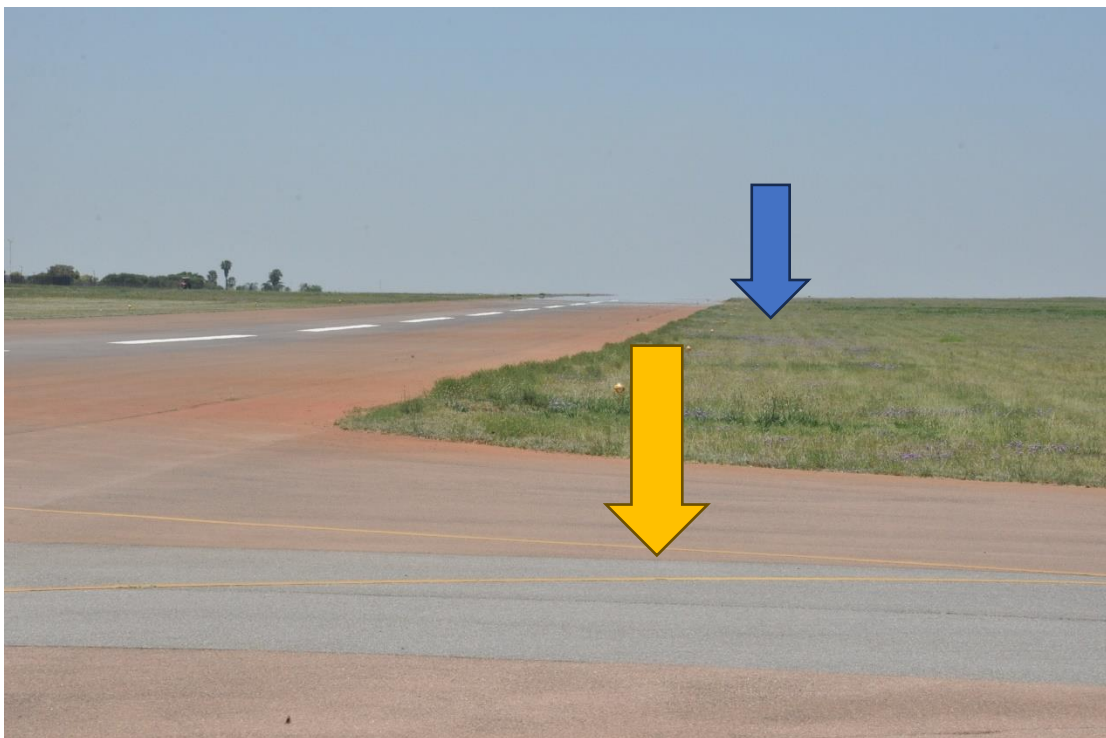


Figure 1: The blue arrow indicates where the aircraft rolled on the grass; the yellow arrow shows taxiway Charlie.



Figure 2: The final resting position of the aircraft. (Source: Airport Rescue and Fire-fighting Service)

Microphone and Headset Installations (Source: Cessna 172 POH)

Standard equipment for the airplane includes a handheld microphone, an overhead speaker, two remote-keyed microphone switches on the control wheels, and provisions for boom mic headsets at each pilot and passenger station.

The handheld microphone contains an integral push to talk switch. This microphone is plugged in to the center pedestal and is accessible to both the pilot and the front passenger. Depressing the push to talk switch allows audio transmission on the communication radios.

Each control wheel contains a miniature push to talk switch. This switch allows the pilot or front passenger to transmit on the communication radio using remote mics.

Dealing with Stress In-flight

(Source: skybrary.aero/articles/stress-and-stress-management-oghfa-bn)

It is important to know how to deal with acute stress taking place during flight and chronic stress that may have been around for an extended period. Reactive and preventative measures are available to deal with both acute and chronic stress. Very often the preventative measures help to improve the reactive coping techniques. For example, practicing a certain emergency technique or making good backup plans are both preventative and make it much easier to deal with an emergency. In general, preparation and practice create competence and confidence and greatly reduce stress levels.

Some stressors that are faced in flight cannot be avoided. The best way of coping with such stressors involves a combination of preparation (pre-flight) and in-flight corrective actions.

Should you still be faced with a totally unexpected stressful situation despite all your careful planning and anticipation, the keys are to recognise the symptoms, remain calm and buy yourself as much time to think as possible. By understanding stress mechanisms, you can control negative emotions resulting from stress such as irritation, nervousness, anxiety, and attempt to solve the problem in the most logical and safe way possible.

- The SP was self-funding her training, which she started on 20 January 2022; she showed potential with her understanding of the flying concepts. The SP grasped some of the exercises the first time she was taught; and for some lessons, she had to be retaught and reminded, which was hour consuming. Out of the 12 months in 2022, the SP flew 10 months, averaging four days of flying a month. The SP only flew four days in succession, which was in February 2022. On the other months, the SP would average five days between lessons. On 2 November 2022, an application for exemption for “No solo before 40 hours” CAR 61.02.7 read with SACATS 61.02.7 (3) was signed by the SP and submitted to the Regulator. On 5 December 2022, the Regulator approved the request for exemption. In 2023, out of the 10 months (including the accident month) the SP flew nine months and averaged three days of flying a month. The SP flew solo in June 2023.
- In an interview with the SP, it was revealed that during troubleshooting of the defect, the SP forgot to move the headset jacks to the other port to be able to use the PTT button on the other control column. It is likely that the pilot was stressed after the ordeal of having to deal with not being audible and having to wait to enter the airspace. Hence, she forgot to close the power lever and centre the aircraft after landing.

Findings

1. The pilot was issued a Student Pilot Licence (SPL) on 19 January 2022 with an expiry date of 16 January 2024.
2. The pilot was issued a valid Class 2 aviation medical certificate on 10 January 2022 with an expiry date of 10 January 2027.
3. The aircraft was issued a Certificate of Airworthiness (C of A) on 31 May 2015 with an expiry date of 31 March 2024. The aircraft was airworthy when it departed for the flight.
4. The aircraft was issued a valid Certificate of Registration (C of R) on 7 June 2017.
5. The aircraft was issued a Certificate of Release to Service (CoRS) on 29 September 2023

with an expiry date of 28 September 2024 or at 8452.9 Tachometer hours, whichever occurs first. There were no reported or recorded defects prior to the flight.

6. The approved training organisation (ATO) had a valid certificate that was issued by the Regulator (SACAA) on 22 January 2021 with an expiry date of 31 January 2026.
7. The aircraft maintenance organisation (AMO) had a valid certificate that was issued by the Regulator (SACAA) on 19 June 2023 with an expiry date of 30 June 2024.
8. The PPT button was inoperative at the time the SP was flying the aircraft.

Probable Cause

The aircraft landed in a high speed which led to a bounce, and the SP lost directional control which culminated in the aircraft nosing over.

Contributing Factor(s)

None.

Safety Action(s)

None.

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 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**