SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT

Reference Number	CA18/2/3/10487						
Classification	Accident	**Date**	3 September 2024	**Time**	1150Z		
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Wonderboom Aerodrome (FAWB), Gauteng Province	Place of Intended Landing	Wonderboom Aerodrome (FAWB), Gauteng Province				
Place of Occurrence	Run-up bay near Runway 29 at Wonderboom Aerodrome (FAWB)						
GPS Co-ordinates	Latitude	25°39'20.21" S	Longitude	028°13'31.93" E	Elevation	4089 ft	
Aircraft Information							
Registration	ZS-EAD						
Make; Model; S/N	Cessna 172F (Serial Number: 172-52464)						
Damage to Aircraft	Substantial	Total Aircraft Hours	6010.56				
Pilot-in-command							
Licence Type	Commercial Pilot Licence (CPL)	Gender	Male	Age	27		
Licence Valid	Yes	Total Hours	1896.6	Total Hours on Type	961.2		
Total Hours Past 30 Days	37.2	Total Flying Hours on Type Past 90 Days	65.9				
People On-board	1 + 1	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Tuesday morning, 3 September 2024, a flight instructor (FI) and a student pilot (SP) on-board a Cessna 172F aircraft with registration ZS-EAD were taxiing towards the run-up bay for Runway 29 with the intention to take off from Wonderboom Aerodrome (FAWB) to the Wonderboom general flying area, Gauteng province. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.

The flight instructor stated that a Cessna Citation aircraft was conducting power checks at the run-up bay as they taxied to the run-up bay near Runway 29. The Cessna 172F entered the run-up bay with the intention to conduct pre-take-off checks; it taxied behind the Cessna Citation towards the next available spot. After reaching the area behind the Cessna Citation, it was jet blasted which caused the left wing to lift up; subsequently, the right wing and the propeller contacted the ground. The aircraft came to rest on the grass area beyond the perimeter of the run-up bay. The crash alarm was activated, and the Aircraft Rescue and Firefighting (ARFF) team responded to the accident site. The flight instructor and the student pilot disembarked from the aircraft unassisted and unharmed. The aircraft sustained substantial damage to the right wing and the propeller.

The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 25°39'20.21" South 028°13'31.93" East, at an elevation of 4089 feet (ft).

Figure 1: Aerial view of the accident site. (Source: Google Earth)

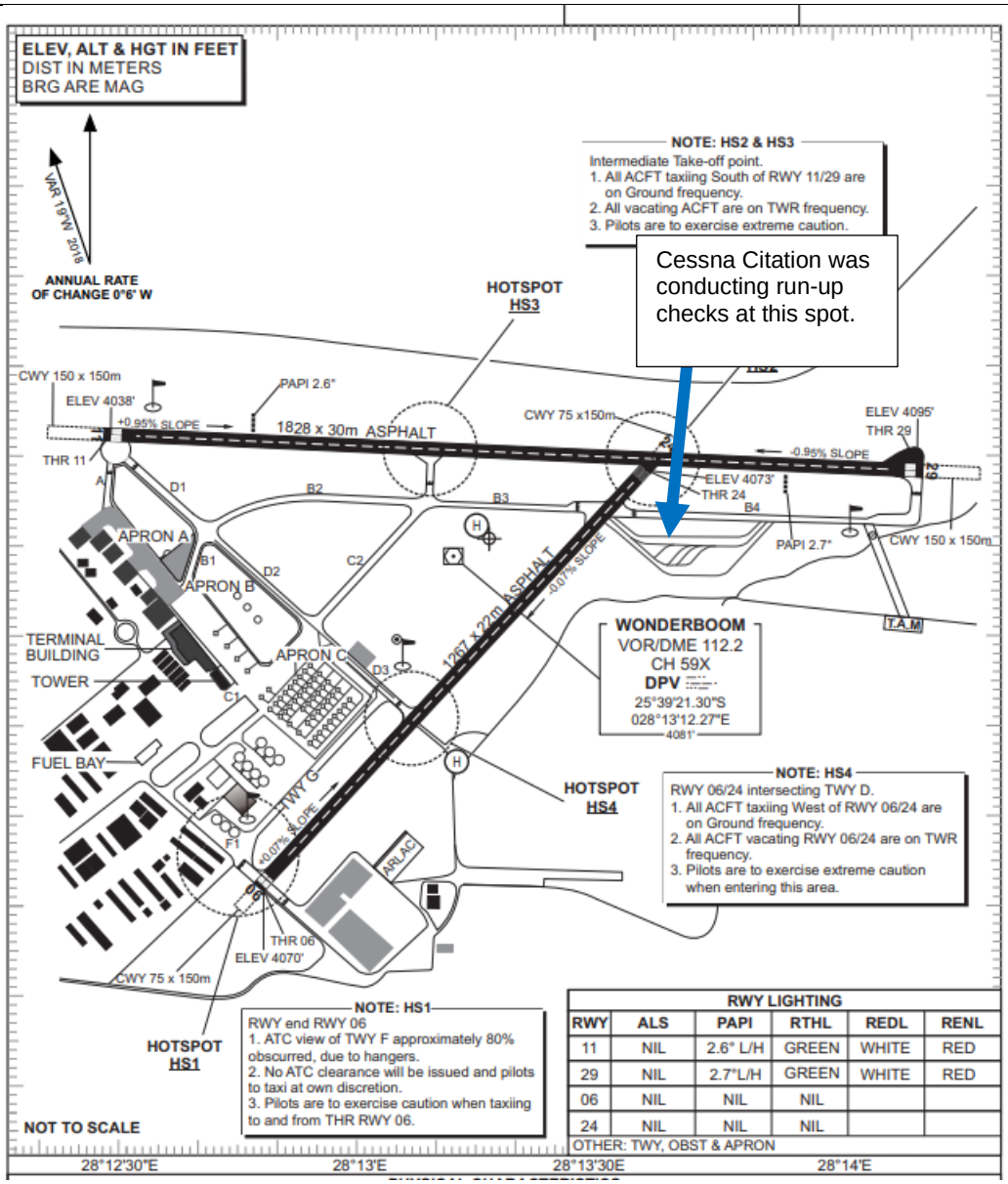

Chart 1: FAWB Chart. (Source: Aeronautical Information Publication)

Figure 2: The aircraft as it came to rest after the accident. (Source: Pilot)

Figure 3: The aircraft sustained damage to the wing tip and the propeller. (Source: Pilot)

The following information is an extract from https://www.globeair.com/g/jet-blast [What does "Jet Blast" mean? • Globe Air]

What is a Jet Blast?

Powerful Thrust, Potential Hazards

Jet Blast refers to the intense stream of air produced at high speed from the back of a jet engine, particularly noticeable when an aircraft is preparing for takeoff or at high power settings. This powerful thrust is essential for the propulsion of jet aircraft but can pose significant hazards in the vicinity of runways and airport aprons. Jet Blast characterizes the forceful expulsion of air at high speeds from the rear of a jet engine, a phenomenon essential to the propulsion of jet aircraft. While essential for achieving flight, Jet Blast poses notable hazards, particularly in airport environments where aircraft operate at high power settings

Nature and Characteristics

Intense Airflow: Jet Blast generates a concentrated stream of air propelled rearward from the jet engine exhaust, exhibiting significant force and velocity. This airflow is a byproduct of the combustion process within the engine and is most pronounced during takeoff and high-thrust operations.

Visible Effects: The effects of Jet Blast are visually apparent, manifesting as a turbulent and rapidly moving column of air behind the aircraft. Disturbances such as swirling dust, debris, and loose objects are common indicators of Jet Blast activity, especially in areas near the runway.

Findings

Flight Instructor

1. The flight instructor was initially issued a Commercial Pilot Licence (CPL) by the South African Civil Aviation Authority (SACAA) on 7 January 2019. The licence was renewed on 10 June 2024 with an expiry date of 31 May 2025. The flight instructor had flown a total of 1896.6 hours of which 34.4 hours were on the aircraft type.

2. The flight instructor had the aircraft type endorsed on his licence. He had a valid Class 1 aviation medical certificate that was issued on 30 January 2024 with an expiry date of 31 January 2025.

Student Pilot

3. The student pilot was initially issued a Student Pilot Licence (SPL) by the SACAA on 30 November 2023 with an expiry date of 29 November 2024.

4. The pilot had the aircraft type endorsed on his licence. The pilot had a valid Class 2 aviation medical certificate that was issued on 13 November 2023 with an expiry date of 30 November 2028.

Aircraft Information

5. The aircraft had a Certificate of Registration (C of R) that was issued to the current owner on 28 July 2021.

6. The aircraft had a valid Certificate of Airworthiness (C of A) that was issued on 31 March 2024 with an expiry date of 31 March 2025.

7. The aircraft was issued a Certificate of Release to Service (CRS) on 2 August 2024 at 4389.1 hours with an expiry date of 1 August 2025 or at 4489.1 hours, whichever occurs first. There were no defects recorded in the flight folio at the time of the accident flight.

Probable Cause

The Cessna 172 taxied behind the Cessna Citation without leaving adequate spacing (room) to avoid jet blast.

Contributing Factor

None.

Safety Action(s)

None.

Safety Message
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