AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:		CA18/2/3/10537	
Aircraft Registration	ZS-KHZ	**Date of Accident**		14 December 2024		**Time of Accident**	0812Z
Type of Aircraft	Piper PA-38-112			**Type of Operation**		Training (Part 141)	
Pilot-in-Command Licence Type	Student Pilot Licence			**Age**	23	Licence Valid	Yes
Pilot-in-Command Flying Experience		**Total Flying Hours**		61.6		**Hours on Type**	61.6
Last Point of Departure	Cape Town International Aerodrome (FACT), Western Cape Province						
Next Point of Intended Landing	Saldanha-Vredenburg Aerodrome (FASD), Western Cape Province						
Damage to Aircraft	Substantial						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Left of Runway 02 at FASD (GPS position: 32°57'49.05" South 017°58'09.04" East), elevation 50 feet							
Meteorological Information	Surface wind: 200°/10-15kts, temperature: 23°C, dew point: 6°C, CAVOK						
Number of People On-board	1 + 0	**Number of People Injured**	1	**Number of People Killed**	0	**Other (On Ground)**	0

Synopsis

On Saturday morning, 14 December 2024, a solo student pilot on-board a Piper PA-38-112 aircraft with registration ZS-KHZ took off on a navigation training flight from Cape Town International Aerodrome (FACT) in Western Cape province to conduct a touch-and-go landing exercise in Saldanha Aerodrome (FASD) in the same province, before returning to FACT for a full-stop landing. The flight was conducted under visual meteorological conditions (VMC) by day. The student pilot joined overhead FASD and followed the unmanned aerodrome joining procedure; he assessed the wind strength and direction from the windsock at the aerodrome and opted to perform a touch-and-go landing on Runway 02. The student pilot was unable to maintain directional control after applying power for lift-off, and the aircraft veered to the left of the runway centreline and departed the runway surface during which the nose landing gear bent backward, and the aircraft nosed over. The student pilot sustained minor injuries. The aircraft was substantially damaged.

Probable Cause

The student pilot failed to assess the prevailing surface wind correctly and, as a result, proceeded to land on Runway 02. This resulted in a tailwind landing, followed by loss of directional control due to inadequate right rudder input after advancing the throttle to full power.

SRP date	9 September 2025	Publication date	10 September 2025

Occurrence Details

Reference Number	**:** CA18/2/3/10537
Occurrence Category	**:** Category 2 (Accident)
Type of Operation	**:** Training (Part 141)
Name of Operator	**:** Cape Town International Aviation Academy (CTIAA)
Aircraft Registration	**:** ZS-KHZ
Aircraft Make and Model	**:** Piper PA-38-112
Nationality	**:** South African
Place	**:** Saldanha-Vredenburg Aerodrome (FASD), Western Cape province
Date and Time	**:** 14 December 2024 at 0812Z
Injuries	**:** Pilot sustained minor injuries
Damage	**:** Substantial

Purpose of the Investigation

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.

Investigation Process

The Accident and Incident Investigations Division (AIID) of the South African Civil Aviation Authority (SACAA) was notified of the occurrence on 14 December 2024 at 0850Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) STD Annex 13 definitions. The investigator did not dispatch to the accident site.

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Accident — this investigated accident
   Aircraft — the Piper PA-38-112 involved in this accident
   Investigation — the investigation into the circumstances of this accident
   Pilot — the pilot involved in this accident
   Report — this accident report

2. *Photos and figures used in this report were taken from different sources and may have been adjusted from the original for the sole purpose of improving the clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression, or enhancement of colour, brightness, contrast, or addition of text boxes, arrows, or lines.*

Disclaimer

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
ATC	Air Traffic Control
ATO	Approved Training Organisation
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CTIAA	Cape Town International Aviation Academy
CAR	Civil Aviation Regulations
CATS	Civil Aviation Technical Standards
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
FAA	Federal Aviation Administration
FACT	Cape Town International Aerodrome
FALW	Langebaanweg Aerodrome
FASD	Saldanha-Vredenburg Aerodrome
FDR	Flight Data Recorder
ft	feet
GPS	Global Positioning System
hPa	hectopascal
kt	knots
m	metres
METAR	Meteorological Aerodrome Report
MTOW	Maximum Take-off Weight
PMA	Parts Manufacturer Approval
QNH	Barometric Pressure Adjusted to Sea Level
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
SB	Service Bulletin
SI	Service Instruction
SL	Service Letter
SPL	Student Pilot Licence
TBO	Time Between Overhaul
UTC	Universal Co-ordinated Time
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1 History of Flight

1.1.1 On Saturday morning, 14 December 2024 at 0630Z, a solo student pilot on-board a Piper PA-38-112 aircraft with registration ZS-KHZ took off on a cross-country training flight from Cape Town International Aerodrome (FACT) in Western Cape province with the intention to perform a touch-and-go landing exercise at Saldanha-Vredenburg Aerodrome (FASD) before returning to FACT for a full-stop landing. 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.

1.1.2 According to an eyewitness, the aircraft joined overhead the aerodrome after conducting an unmanned joining procedure. The eyewitness further stated that the student pilot flew two circuits before he performed a touch-and-go landing on Runway 02. *The prevailing wind was from south south-westerly direction and favoured Runway 20 for landing.* The student pilot stated that he had selected 20° wing flaps for landing. After the aircraft touched down, he retracted the wing flaps and applied full power to take-off. At approximately 60 knots (kts), he applied back pressure on the control column to lift off. The aircraft's nose wheel lifted off the ground but the main wheels remained in contact with the runway surface. At that stage, the aircraft veered to the left of the runway centreline and the student pilot could not correct the direction even after engaging the right rudder pedal. The aircraft veered off the runway surface and careered over dry grass next to the runway during which the nose landing gear strut bent backward and the aircraft nosed over, resting in that attitude.

1.1.3 Several people who were at the aerodrome at the time rushed to the scene to assist the student pilot. He was able to disembark from the cockpit unassisted. Emergency Medical Services (EMS) personnel responded to the scene and, following an assessment of the pilot, he was taken to the hospital for a medical check-up. The aircraft sustained substantial damage.

1.1.4 The accident occurred during daytime at Global Positioning System (GPS) co-ordinates determined to be 32°57'49.05" South 017°58'09.04" East, at an elevation of 50 feet (ft).

Figure 1: The yellow pin indicates the position of the ZS-KHZ aircraft at FASD. Langebaanweg Aerodrome (FALW) is located 10nm east of FASD. (Source: Google Earth)

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	1	-	-	1	-
None	-	-	-	-	-
Total	**1**	**-**	**-**	**1**	**-**

Note: Other means people on the ground.

1.3 Damage to Aircraft

1.3.1 The aircraft was substantially damaged during the accident sequence.

Figure 2: The wreckage in an inverted attitude next to the runway.

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information

1.5.1 Student Pilot (SPL)

Nationality	South African	Gender	Male	Age	23
Licence Type	Student Pilot Licence (SPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	15 November 2027 (Class 2)				
Restrictions	None				
Previous Accidents	None				

Note: Previous accidents refer to past accidents the pilot was involved in, when relevant to this accident.

Flying Experience:

Total Hours	61.6
Total Past 24 Hours	12.7
Total on Type Past 90 Days	12.7
Total on Type	61.6

1.5.2 Student Pilot Training and Procedures

The Approved Training Organisation (ATO) Training and Procedures Manual (TPM) was approved by the Regulator (SACAA). The TPM describes the requirements for training pilots and the sequence of instruction and procedures to be followed and completed by flight instructors affiliated to the organisation.

According to available information, the student pilot's first training flight was conducted on 31 January 2023. He continued with his training and stopped flying on 14 July 2023. During this period, he had accumulated 47.9 flying hours of which 9.5 hours were for solo flights.

The student pilot resumed his training on 26 September 2024, which was 14 months after his last training flight. His training record, listed in the table below, was obtained from his pilot logbook in which the last entry was for the flight conducted on 23 October 2024, as well as his pilot training file from the ATO. This includes the hours flown during the accident flight. During the dual navigation flight on 23 October 2024, one of the navigation points was FASD. The crew, however, did not land there on that day.

Date	**Type of flight**	**Dual or Solo**	**Duration (hours)**
26 September 2024	Exercise 18 (Navigational flight)	Dual	2.1
5 October 2024	Exercise 12, 13 (Circuit work)	Dual	1.3
6 October 2024	Exercise 18 (Navigational flight)	Solo	2.0
23 October 2024	Exercise 18 (Navigational flight)	Dual	3.2
9 December 2024	50-Hour Dual Check with an Instructor	Dual	2.3
14 December 2024	Exercise 18 (Navigational flight) Accident flight	Solo	0.9
Total flying hours			**11.8**

*NOTE
Exercise 12 consists of the following: Take-off, Climb to Downwind
Exercise 13 consists of the following: Base leg, Final approach, and Landing

1.6 Aircraft Information

1.6.1 Piper PA-38-112 (Source: Pilot's Operating Handbook, Section 7, Description of Operation)

The Piper PA-38-112 is a single-engine, fixed-gear, low-wing monoplane of all-metal construction. It has a two-place seating arrangement. The empennage is a T-tail configuration with a fixed horizontal stabiliser mounted atop the vertical fin.

Figure 3: The file picture of the ZS-KHZ aircraft. (Source: Flight Zone Aviation Photography)

Airframe:

Manufacturer/Model	Piper Aircraft Corporation / PA-38-112	
Serial Number	38-79A0039	
Year of Manufacture	1979	
Total Airframe Hours (at the time of the accident)	11 063.40	
Last Inspection (Hours & Date)	10 970.68	15 October 2025
Airframe Hours Since Last Inspection	92.72	
MTOW	757kg	
CRS Issue Date	30 September 2024	
C of A (Issue Date & Expiry Date)	6 August 2010	31 March 2025
C of R (Issue Date) (Present Owner)	12 July 2022	
Operating Category	Production Built	
Type of Fuel Used	Avgas	
Previous Accidents	None	

Note: Previous accidents refer to past accidents the aircraft was involved in, when relevant to this accident.

Engine:

Manufacturer/Model	Lycoming O-235-L2C
Serial Number	L-17472-15
Hours Since New	4 602.13
Hours Since Overhaul	2 106.94

The engine was last overhauled on 31 May 2006. It had exceeded the 12-year overhaul inspection requirement as called for in the Lycoming Service Instruction (SI) No. 1009BE, dated 24 April 2020 by 6 years, 7 months and 14 days at the time of the accident flight.

NOTE: The Service Instruction identifies the Calendar Time Period in years and the Operating Hour Time Period in hours of engine operation for the Time Between Overhaul (TBO) for certified Lycoming engine models operated and maintained in compliance with all applicable Lycoming Technical Publications and Federal Aviation Administration (FAA) Airworthiness Directives.

The TBOs stated in this Service Instruction do not apply to engines that:

a. Do not conform to the original engine model type certificate configuration,
b. Have been assembled, repaired or overhauled with FAA PMA parts, where the PMA parts have not been approved for use by Lycoming (contact Lycoming for information regarding FAA-PMA parts approved for use by Lycoming),
c. Have been maintained or overhauled using methods other than Lycoming-approved procedures, or
d. Have been operated outside Lycoming's published specifications.

All engine models are to be overhauled within twelve (12) years from the first entered service or the last overhaul. This specified period seeks to mitigate engine deterioration that occurs with age, including corrosion of metallic components and degradation of non-metallic components such as gaskets, seals, flexible hoses and fuel pump diaphragms.

The aircraft engine current time since overhaul was 2 106.94 hours. It had, therefore, exceeded not only the life service limit of 12 years but also the TBO life limit of 2000 hours.

The SACAA issued a General Notice Relating to the CAR 43.02.8 and the South African Civil Aviation Technical Standards (SA-CATS) 43.02.5 on 25 November 2024, which applied to all owners or operators of aircraft fitted with Textron Lycoming and Teledyne Continental engines:

"Textron Lycoming or Teledyne Continental reciprocating aircraft engines, including maintenance methods, techniques, and inspection, must be done in line with the engine's manufacture requirements as detailed in their maintenance manual or any other continuing airworthiness information (SB, SI, or SL) that may be issued by manufacturers from time to time. All other provisions of CAR 43.02.8 and CATS 43.02.5, to the extent that there is no relief granted in terms of this General Notice, remain applicable."

This rendered the aircraft's Certificate of Airworthiness (C of A) invalid at the time of the flight as the aircraft owner had failed to ensure continuous airworthiness requirements. The aircraft was operated in a flight training environment, which is defined as a commercial operation.

Propeller:

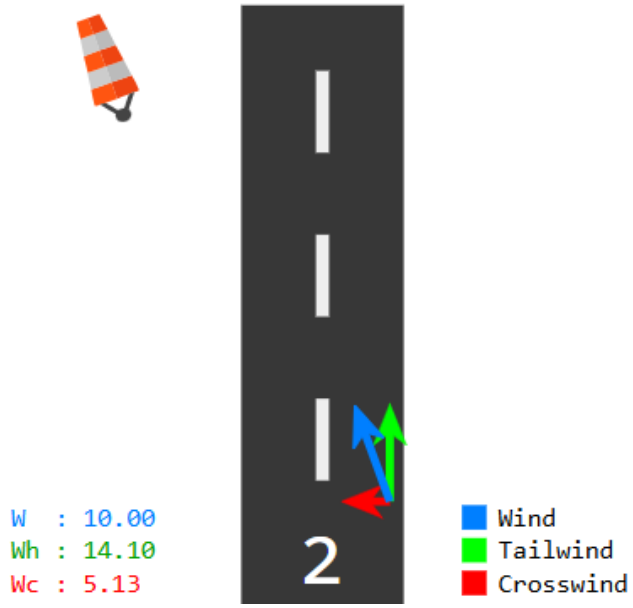
Manufacturer/Model	Sensenich 72CK-O-56
Serial Number	K9408
Hours Since New	1 959.98
Hours Since Overhaul	TBO not yet reached

1.7 Meteorological Information

1.7.1 The weather information in the table below was obtained from the pilot questionnaire, completed by the student pilot.

Wind Direction	180°	Wind Speed	10kt	Visibility	9999m
Temperature	19°C	Cloud Cover	CAVOK	Cloud Base	Nil
Dew Point	9°C	QNH	1015hPa		

1.7.2 Wind Component Calculator (Using the weather information as per the table above)
Source: https://e6bx.com/wind-components/



1.7.3 The weather information below was obtained from the meteorological aerodrome report (METAR) that was issued by the South African Weather Service (SAWS), recorded at Langebaanweg Aerodrome (FALW) on 14 December 2024 at 0800Z. FALW is located 10nm east of FASD.

FALW 140800Z AUTO 12005KT //// // ////// 23/06 Q1015=

Wind Direction	120°	Wind Speed	5kt	Visibility	9999m
Temperature	23°C	Cloud Cover	CAVOK	Cloud Base	Nil
Dew Point	6°C	QNH	1015hPa		

1.7.4 According to the eyewitness who was at the aerodrome at the time of the accident, the wind was blowing south south-westerly at approximately 10 to 15 kts.

1.7.5 The prevailing wind at FACT was from the south between 0400Z and 0930Z on 14 December 2024.

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as approved by the Regulator (SACAA). There were no records indicating that the navigational equipment was unserviceable before the flight.

1.9 Communication

1.9.1 The aircraft was equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system before the flight.

1.9.2 There was no radio communication between the pilot and the air traffic control (ATC) officer at FALW as the tower was closed on the day.

1.9.3 The radio frequency for FASD is 122.70-Megahertz (MHz).

1.10 Aerodrome Information

Aerodrome Name	Saldanha-Vredenburg Aerodrome (FASD)
Aerodrome Location	Saldanha, Western Cape
Aerodrome Status	Licensed
Aerodrome GPS coordinates	32°57’49.05” South 017°58’09.04” East
Aerodrome Elevation	50ft
Runway Headings	02/20
Dimensions of Runway	1 419m x 25m
Heading of Runway Used	02
Runway Surface	Asphalt

Approach Facilities	Runway lights
Radio Frequencies	122.50 MHz - CTR inbound 122.70 MHz – Aerodrome in sight

The information in the table above was obtained from the West Coast Flying Club website: www.wcflyingclub.co.za

Figure 4: Windsock No.1 at FASD is positioned near the threshold of Runway 20.
(*NOTE: This photo was not taken on the day of the accident.)

Figure 5: Windsock No.2 at FASD is positioned approximately halfway down the runway.
(*NOTE: This photo was not taken on the day of the accident.)

1.11 Flight Recorders

1.11.1 The aircraft was neither equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), nor was it required by regulation to be fitted to the aircraft type.

1.12 Wreckage and Impact Information

1.12.1 The aircraft veered off to the left of the runway, approximately 600 metres (m) past the threshold of Runway 02. It then careered over uneven terrain that was covered in dry grass for approximately 25m. The nose wheel strut assembly bent backward, and the aircraft nosed over, resting in that attitude.

Figure 6: The aircraft path on dry grass after it had veered off the runway.

Figure 7: A section of the runway with the aircraft in an inverted attitude.

Figure 8: The aircraft as it came to rest.

Figure 9: The aft view of the wreckage.

1.13 Medical and Pathological Information

1.13.1 Not applicable.

1.14 Fire

1.14.1 There was no pre- or post-impact fire.

1.15 Survival Aspects

1.15.1 The accident was considered survivable. The pilot was properly restrained by the aircraft-equipped safety harness. The cockpit area remained intact when the aircraft nosed over; the forward speed was relatively slow.

1.16 Tests and Research

1.16.1 None.

1.17 Organisational and Management Information

1.17.1 The training flight was conducted under the provisions of Part 141 of the CAR 2011 as amended. The ATO had a valid ATO Certificate that was issued by the Regulator (SACAA) on 4 January 2023 with an expiry date of 31 August 2027.

1.17.2 The last maintenance inspection of the aircraft was conducted and certified on 15 October 2024 at 10 970.6 hours. The aircraft maintenance organisation (AMO) which maintained the aircraft had a valid AMO Certificate that was issued by the Regulator on 31 August 2024 with an expiry date of 31 August 2025.

1.17.3 The last oversight activity conducted by the Regulator at the ATO facility was on 7 August 2024 in which two, level three findings were raised (SA-CATS 141.01.8 definition of a level three finding: *A non-compliance or finding which shall not necessarily have an immediate direct impact on safety or security on its own. It is the responsibility of the approval holder to rectify and shall not necessitate a follow-up inspection. An approval holder is required to notify the Authority within a specified time frame when rectification has been affected. These findings are normally administrative in nature. Generally, a response containing corrective actions shall be received within 14 working days.*)

1.17.4 The findings related to deficiencies in quality control (SACATS 141.01.18) and the capturing of safety performance indicators (SACATS 140). The operator submitted corrective actions to the Regulator within 14 days, which were accepted.

1.18 Additional Information

1.18.1 Why Aircraft Take-off and Land into the Wind
Source: https://aviationtheoryaustralia.com.au/blog/f/why-aircraft-take-off-and-land-into-the-wind-explained

Aircraft take-off and land into the wind primarily to maximise aerodynamic efficiency, improve safety, and reduce the required runway length.

1. *Principles of Aerodynamics*

- *Lift Generation: Aircraft wings generate lift by moving air over their surfaces. The faster the airflow relative to the wing, the more lift is produced.*
- *Ground Speed vs. Airspeed: The wind blowing opposite to the aircraft's direction reduces the ground speed needed to achieve the required airspeed for lift. For example, if an aircraft needs 100 knots of airspeed to take off and there is a 20-knot headwind, the aircraft only needs to reach 80 knots of ground speed.*

2. Reduced Runway Length

- *Take-off: By taking off into the wind, the aircraft reaches its required airspeed more quickly, allowing it to lift off using less runway. This is especially critical at airports with shorter runways or in emergency situations.*
- *Landing: Similarly, landing into the wind reduces the aircraft's ground speed upon touchdown, allowing it to decelerate more quickly and use less runway for braking.*

3. Improved Control and Safety

- *Directional Stability: Taking off or landing with a tailwind (wind from behind) can make controlling the aircraft more difficult, as it increases ground speed and reduces the relative airflow over control surfaces.*
- *Reduced Risk of Overruns: Lower ground speeds into the wind decrease the risk of runway overruns during take-off or landing, particularly in adverse conditions like wet or icy runways.*
- *Wind Shear and Gusts: Landing into the wind helps the aircraft maintain stability as it reduces the impact of sudden changes in wind speed or direction (wind shear).*

4. Fuel Efficiency and Engine Performance

- *Take-off Climb Performance: A headwind assists the aircraft in climbing more efficiently, as the engines do not need to work as hard to overcome inertia. This is especially important for fully loaded aircraft or those operating at high-altitude airports.*
- *Reduced Stress on Brakes and Tyres: Slower ground speeds during landing reduce the wear and tear on braking systems and tyres.*

5. Exceptions to the Rule

While taking off and landing into the wind is the norm, there are exceptions:

- *Crosswinds: Sometimes, wind direction does not align perfectly with the runway. Pilots must use crosswind techniques, such as crabbing or sideslipping, to maintain control.*
- *Operational Constraints: At some airports, terrain, obstacles, or air traffic patterns may require take-offs or landings with a slight tailwind.*

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 General

From the available evidence, the following analysis was made concerning this accident. This shall not be read as apportioning blame or liability to any organisation or individual.

2.2 Analysis

2.2.1 Student Pilot

In essence, a touch-and-go landing comprises two separate manoeuvres in one—a landing and a take-off—with many tasks happening almost simultaneously. The pilot must add power, maintain control of the aircraft, lift off, possibly retract flaps, climb out and retrim.

The pilot had taken a 14-month break from flight training, which may have resulted in degraded decision-making processes. Whilst the student pilot had completed 8.9 hours of dual flight training before the accident, emphasis was placed on general air work and navigational exercises. There was no sufficient evidence to indicate that the pilot was exposed to training which considered varying wind conditions in line with the aircraft limitations to ensure that adequate decision-making skills were built before the solo sign-off. On 23 October 2024, the instructor documented that the pilot was required to work on task prioritisation and to fly the aircraft first, then navigate and communicate. A debrief sheet indicating the sequence of the flight exercises completed on 9 December 2024 was not included in the pilot's file. Forty-seven days lapsed between the two dual flights. In the absence of a debrief, the investigation could not establish the level of competency displayed by the student pilot before the solo consolidation flight.

An unmanned aerodrome requires the pilot to have greater situational awareness as there is no air traffic control (ATC) to provide information relating to surface wind conditions. Reliance is placed on the pilot to use the resources available in-flight to make an informed decision prior to nominating a runway for landing. Whilst the student pilot had completed a navigational dual exercise with a flight instructor to FASD, he had not landed at FASD before.

During approach for landing, the pilot assessed the wind direction and speed, maintaining two-way communication with other traffic, navigating and flying the aircraft. This increased cognitive load for the student pilot whose skills could have degraded during his 14-month hiatus, and with limited recurrent training completed. Good decision-making would have meant that the pilot recognised the effect of the wind conditions on the accident day and the potential risk of losing directional control when landing.

Landing in a tailwind increased the ground speed of the aircraft, which resulted in difficulty to slow down the aircraft due to the limited effectiveness of the control surface, further hindering the student pilot's ability to maintain control of the aircraft.

2.2.2 Aircraft

The engine of the aircraft was not subjected to a teardown inspection as it had exceeded its 12-year engine overhaul inspection by a substantial period, as per the requirements of the engine manufacturer and the applicable Parts of the CAR. The student pilot did not state that he was experiencing any mechanical malfunction with the engine or the aircraft that would have contributed to or caused the accident.

2.2.3 Approved Training Organisation (ATO)

The ATO had an approved Training and Procedures Manual which outlined the procedure for a dual check and the completion of progress reports for each flight completed by an instructor. The progress report for the flight completed on 9 December 2024 was not available to the investigator to review and ascertain the scope of training and level of competency of the student pilot before being allowed to conduct the solo consolidation flight.

During the Regulator's oversight activity, which was completed on 8 August 2024, deficiencies were identified in the ATO's quality control. The lack of records may be attributed to the inconsistent document control, which falls under the scope of quality control.

Of the six flights on record conducted by the student pilot after his return to training, only two included circuit work (take-offs and landings); the rest were navigational flights. During his first solo flight at an unmanned aerodrome, he landed downwind. The student pilot might have had limited dual flight circuit training at an unmanned aerodrome which may have resulted in limited development of situational awareness.

2.2.4 Environment

The pilot attempted to perform a touch-and-go landing at a licensed aerodrome that had two active windsocks. The prevailing wind at the time was south south-westerly at 10 to 15 kts, favouring Runway 20 for landing. After conducting two circuits overhead the aerodrome to assess the surface wind, the student pilot opted to land on Runway 02. The wind component calculator (see page 11) indicated a tailwind of 14 kts, using the weather information supplied by the student pilot via the pilot questionnaire form.

2.2.5 Conclusion

The lapse in training should be regarded as a significant factor in this accident as the student pilot's initial training after returning to flying mostly comprised navigational flights with little circuit work, which consisted of landings and take-offs. The fact that the student pilot did not assess the surface wind correctly before he attempted the touch-and-go landing highlights the lacked in situational awareness and, as a result, he made an error in judgment.

When landing downwind, the aircraft will reach the runway at its landing speed, shown on the Air Speed Indicator (ASI) plus the downwind component, thus, travelling faster relative to the ground. The aircraft is faster when airborne and landing, therefore, it will roll further, effectively 'shortening' the available runway. Another factor the student pilot had to deal with was that the landing speed equals the downwind component, and there would be little to no aerodynamic control over the aircraft because little to no air is flowing over the control surfaces. There was also a crosswind component of 5 kts from the right which the student pilot had to deal with, and with the (only) control being differential wheel braking. The student pilot was unable to maintain directional control of the aircraft, and it veered off to the left of the runway, bounced a few times on uneven ground and nosed over.

3. CONCLUSION

3.1 General

From the available evidence, the following findings, causes, and contributing factors were made concerning this accident. These shall not be read as apportioning blame or liability to any organisation or individual.

To serve the objective of this investigation, the following sections are included in the conclusion heading:

- **Findings —** are statements of all significant conditions, events, or circumstances in this accident. The findings are significant steps in this accident sequence, but they are not always causal or indicate deficiencies.
- **Causes —** are actions, omissions, events, conditions, or a combination thereof, that led to this accident.
- **Contributing factors —** are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided, or absent, would have reduced the probability of the accident occurring, or would have mitigated the severity of the consequences of the accident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil, or criminal liability.

3.2 Findings

Student Pilot

3.2.1 The pilot had a Student Pilot Licence (SPL) that was initially issued by the Regulator on 26 January 2023 with an expiry date of 5 March 2025. The pilot had flown a total of 61.6 hours on the aircraft type.

3.2.2 The student pilot had a Class 2 aviation medical certificate that was issued on 15 November 2022 with an expiry date of 15 November 2027 without any restrictions.

3.2.3 The student pilot took a recess of 14 months during his training before he resumed flying on 26 September 2024.

3.2.4 The student pilot opted to perform the touch-and-go landing on Runway 02, which resulted in a downwind landing.

3.2.5 The emergency medical personnel attended to the student pilot on site, and he was later taken to the hospital for a medical check-up.

Aircraft

3.2.6 The last maintenance inspection of the aircraft was certified on 15 October 2024 at 10 970.6 airframe hours. The aircraft had accrued 92.8 hours since the said inspection.

3.2.7 The aircraft's Certificate of Airworthiness (C of A) was initially issued on 6 August 2010. The latest C of A had an expiry date of 31 March 2025.

3.2.8 The C of A was not valid at the time of the accident flight as there was a non-compliance of the 12-year engine overhaul requirement.

3.2.9 The aircraft's Certificate of Registration (C of R) was issued to the present owner on 12 July 2022.

3.2.10 The aircraft was issued a Certificate of Release to Service (CRS) on 30 September 2024 with an expiry date of 30 September 2025 or at 11 070.6 airframe hours, whichever occurs first.

3.2.11 The engine fitted to the aircraft had exceeded its 12-year overhaul inspection as called for in the Textron Lycoming Service Instruction (SI) No. 1009BE, dated 14 April 2020. The engine was supposed to have been overhauled in May 2018, but no maintenance intervention took place.

Meteorological Information

3.2.12 According to the METAR data for FALW, fine weather conditions prevailed at the time of the flight.

3.2.13 According to an eyewitness who was at FASD at the time of the accident, the wind was blowing south south-westerly at approximately 10 to 15 kts.

Approved Training Organisation (ATO)

3.2.14 The ATO was issued an Approved Training Organisation (ATO) Certificate by the Regulator (SACAA) on 4 January 2023 with an expiry date of 31 August 2027.

3.2.15 According to available information, the student pilot's training comprised mainly navigational flights except for two, after his return to training.

3.2.16 During one of the navigational flights the student pilot had conducted after his return to training, FASD was one of the waypoints en route; however, they did not land at the aerodrome.

Aerodrome

3.2.17 FASD is a licensed aerodrome with a single asphalt runway orientated 02/20 and 1419m long and 25m wide. FASD is located 10nm west of FALW, which is an Air Force Base; the ATC tower at the base was closed at the time of the accident flight.

3.2.18 There were two serviceable windsocks at FASD at the time of the flight as depicted in Figures 4 and 5.

3.2.19 There was a large number of people at FASD on the morning of the accident as they were attending a clubhouse breakfast. These people responded swiftly to the accident site to render assistance as well as notify all the relevant parties, including the medical emergency personnel.

3.3 Probable Cause

3.3.1 The student pilot failed to assess the prevailing surface wind correctly and proceeded to land on Runway 02. This resulted in a tailwind landing, followed by loss of directional control due to inadequate right rudder input after advancing the throttle to full power.

3.4 Contributory Factors

3.4.1 The student pilot made an incorrect assessment of the prevailing surface wind at FASD, even though there were two windsocks at the aerodrome.

3.4.2 The student pilot was unfamiliar with FASD, even though he had flown over the aerodrome during a navigational flight on 23 October 2024.

3.4.3 The student pilot's lack of experience, especially after taking a 14-month break from active training, was considered a significant contributory factor to this accident.

3.4.4 The student pilot primarily flew navigational flights after returning to training. His exposure to take-offs and landings was limited, especially at remote locations as the ATO was based at FACT where the runway is 3 201m long and 61m wide. The runway dimensions at FACT more than double in length and nearly three times wider compared to the runway at FASD. Moreover, ATC communicates to the crew and clears them for landing on the active runway at FACT.

4. SAFETY RECOMMENDATIONS

4.1 General

The safety recommendations listed in this report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this report. The AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

4.2 Safety Recommendation

4.2.1 None.

4.3 Safety Message

4.3.1 It is recommended that student pilots who return to flight training after a break of more than 6 months be subjected to several hours of circuit work, including many take-offs and landings before consideration of any other flights in the practical syllabus (such as navigational flights) by the respective ATO.

5. APPENDICES

5.1 None.

This report is issued by:

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