

AIRCRAFT SERIOUS INCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/3/2/1425	
Aircraft Registration	ZS-JLD & ZS-JGD		Date of Incident	4 August 2023	Time of Incident	1100 Z
Type of Aircraft	Piper-28R-200 & Piper-28-180		Type of Operation		Training (Part 141)	
Pilot-in-command Licence Type (ZS-JLD)	Student Pilot Licence	Age	23	Licence Valid	Yes	
Pilot-in-command Flying Experience (ZS-JLD)	Total Flying Hours		108	Hours on Type	98	
Pilot-in-command Licence Type (ZS-JGD)	Commercial Pilot Licence	Age	29	Licence Valid	Yes	
Pilot-in-command Flying Experience (ZS-JGD)	Total Flying Hours		532.8	Hours on Type	83	
Last Point of Departure (ZS-JLD)	Port Alfred Aerodrome, (FAPA) Eastern Cape Province					
Next Point of Intended Landing (ZS-JLD)	Port Alfred Aerodrome, (FAPA) Eastern Cape Province					
Last Point of Departure (ZS-JGD)	Port Alfred Aerodrome, (FAPA) Eastern Cape Province					
Next Point of Intended Landing (ZS-JGD)	Port Alfred Aerodrome, (FAPA) Eastern Cape Province					
Damage to Aircraft	None for both aircraft					
Location of the incident site with reference to easily defined geographical points (GPS readings if possible)						
Late right downwind on Runway 28 at FAPA (GPS co-ordinates: 33° 32' 53" South 26° 53' 36" East, at an elevation 288 feet)						
Meteorological Information	Surface wind: 340°/10 kts, Temperature: 27°C; Dew point: 6°C; CAVOK; QNH: 10					
Number of People On-board	1+0 and 2+0	Number of People Injured	0	Number of People Killed	0	Other (On Ground) 0
Synopsis						
<p>On 4 August 2023, a Piper-28-180 aircraft registered ZS-JGD which belonged to the 43 Air School was engaged in circuit exercises on Runway 28R at Port Alfred Aerodrome (FAPA) in the Eastern Cape province. Also at the same aerodrome, a Piper-28R-200 aircraft registered ZS-JLD which also belonged to the 43 Air School had commenced with the take-off on Runway 28R for a navigational flight with the intention to route towards the east of FAPA. A student pilot and the Grade 3 flight instructor were on-board the ZS-JGD; whilst a solo student pilot was on-board the ZS-JLD. Shortly after take-off, ZS-JGD joined Runway 28R circuit on the right downwind. ZS-JLD followed a similar path to route towards the east. Both aircraft were on the right downwind for Runway 28R moments after take-off. Whilst ZS-JGD turned right base Runway 28R, the instructor spotted the landing light of ZS-JLD a few metres away and immediately took control of the aircraft from the student pilot and expeditiously made a descent to avoid a collision. Both aircraft proceeded without any further incident.</p>						

Probable Cause/s and/or Contributory Factors

The student pilot (ZS-JLD) did not keep sight of the preceding traffic and did not fly a proper circuit. Her circuit converged towards the runway on late right downwind which resulted in air proximity (airprox) with an aircraft that was turning right base for Runway 28R.

Contributory Factors

- Lack of traffic awareness.
- Disregard of standard circuit pattern.

SRP Date	12 December 2023	Publication Date	19 December 2023
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Occurrence Details

Reference Number : CA18/3/2/1425
Name of Owner/Operator : 43 Air School
Manufacturer : Piper Aircraft Company
Model : Piper-28R-200 and Piper-28-180
Nationality : South African
Registration Mark : ZS-JLD and ZS-JGD
Place : Late right downwind Runway 28 at FAPA
Date : 4 August 2023
Time : 1100Z

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 5 August 2023. The occurrence was categorised as a serious incident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) STD Annex 13 definitions. The notifications were sent to the State of Registry and Manufacturer in accordance with the CAR 2011 Part 12 and ICAO Annex 13 Chapter 4. The states did not appoint an accredited representative and/or advisor. Investigators did not dispatch to the incident site for this occurrence.

Notes:

- Whenever the following words are mentioned in this report, they shall mean the following:*
 - Incident — this investigated serious incident*
 - Aircraft — the Piper-28R-200 and the Piper-28-180 involved in this serious incident*
 - Investigation — the investigation into the circumstances of this serious incident*
 - Pilot — the pilots involved in this serious incident*
 - Report — this serious incident report*
- 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 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

This report is produced without prejudice to the rights of the SACAA, which are reserved.

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
AIRPROX	Air Proximity
AMO	Aircraft Maintenance Organisation
ATO	Approved Training Organisation
CAR	Civil Aviation Regulations
CATS	Civil Aviation Technical Standards
CAVOK	Ceiling and Visibility OK
C of A	Certificate of Airworthiness
CFI	Chief Flying Instructor
C of R	Certificate of Registration
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
DFE	Designated Flight Examiner
E	East
FDR	Flight Data Recorder
ft	Feet
GPS	Global Positioning System
hPa	Hectopascal
IIC	Investigator-in-charge
IOC	Investigator-on-call
kt	Knot(s)
m	Metre(s)
METAR	Meteorological Aerodrome Report
MPI	Mandatory Periodic Inspection
NM	Nautical mile
QNH	Query: Nautical Height (Altitude Above Mean Sea Level)
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
VFR	Visual Flight Rules
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

- 1.1.1 On Friday, 4 August 2023 at 1100Z, a student pilot on-board a Piper-28R-200 aircraft with registration ZS-JLD, and a student pilot and a flight instructor on-board a Piper-28-180 aircraft with registration ZS-JGD were involved in a serious incident at Port Alfred Aerodrome (FAPA) in the Eastern Cape province. ZS-JLD student pilot's intention was to take-off from Runway (RWY) 28R for a navigational flight and route towards the east of FAPA and, thereafter, return to FAPA, whilst ZS-JGD crew's intention was to conduct circuit exercises (touch and-go-training) at FAPA. The flights were 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 ZS-JGD took off first from RWY 28R and remained on the right-side circuit. Thereafter, ZS-JLD requested information on frequency 122.0-Megahertz (MHz) for take-off from RWY 28R. The aerodrome flight information service (AFIS) officer acknowledged the request and made the student pilot aware of the other traffic (ZS-JGD). ZS-JLD was to follow the right-hand circuit and route east upon reaching late downwind RWY 28R. Both aircraft were on the right downwind position for RWY 28R minutes after take-off. The flight instructor stated that as ZS-JGD turned right base Runway 28R, he looked out towards the right and observed the landing light of another aircraft (ZS-JLD) and immediately made a descent to avoid a collision.
- 1.1.3 According to the AFIS officer on duty at FAPA at the time of the incident, ZS-JGD intended to conduct circuit training on RWY 28R. After ZS-JGD took off, ZS-JLD student pilot reported that she was ready for departure through initially joining the right-hand circuit and, thereafter, leaving the airspace on late downwind RWY 28R (3 nautical miles [nm] north abeam Riet River Mouth). ZS-JLD was given the surface wind, informed that the runway is clear and to report zone outbound with traffic information about ZS-JGD. She acknowledged traffic information details and then proceeded to depart RWY 28R. After about 3 minutes, ZS-JGD reported that an aircraft flew too close to theirs and immediately asked the AFIS officer which aircraft was it. ZS-JGD was then informed that it was ZS-JLD which was routing east. The AFIS officer immediately contacted ZS-JLD to confirm their exact position. ZS-JLD reported that she was 1nm south of the quarry. *This meant that the solo student pilot flew further towards the south than what the standard circuit (tight right downwind) allowed, which led to the converging flight paths with ZS-JGD when they were turning right base.* The student pilot did not keep the preceding traffic in sight to allow for adequate separation. According to the AFIS officer, the solo student pilot lost sight of the traffic she was following.

- 1.1.4 According to the solo student pilot (ZS-JLD), before take-off on RWY 28R, she was made aware of the traffic on upwind by the AFIS officer. She then took off after being told that the runway is clear, turned crosswind and levelled off on circuit altitude. On the radio, she was aware there was traffic in the circuit. On late downwind, she converged towards the runway (RWY 28R). As she was converging, there was traffic turning right base RWY 28R. She caught up with the traffic because her aircraft was faster. This is when the two aircraft were in proximity to each other.
- 1.1.5 The two aircraft did not make contact with each other. ZS-JGD proceeded to conduct touch-and-go exercises as planned, and ZS-JLD proceeded to route towards the east for the solo navigational flight.
- 1.1.6 The serious incident occurred during daylight on late right downwind RWY 28R at FAPA and at Global Positioning System (GPS) co-ordinates determined to be 33° 32' 53" South 26° 53' 36" East, at an elevation 288 feet).

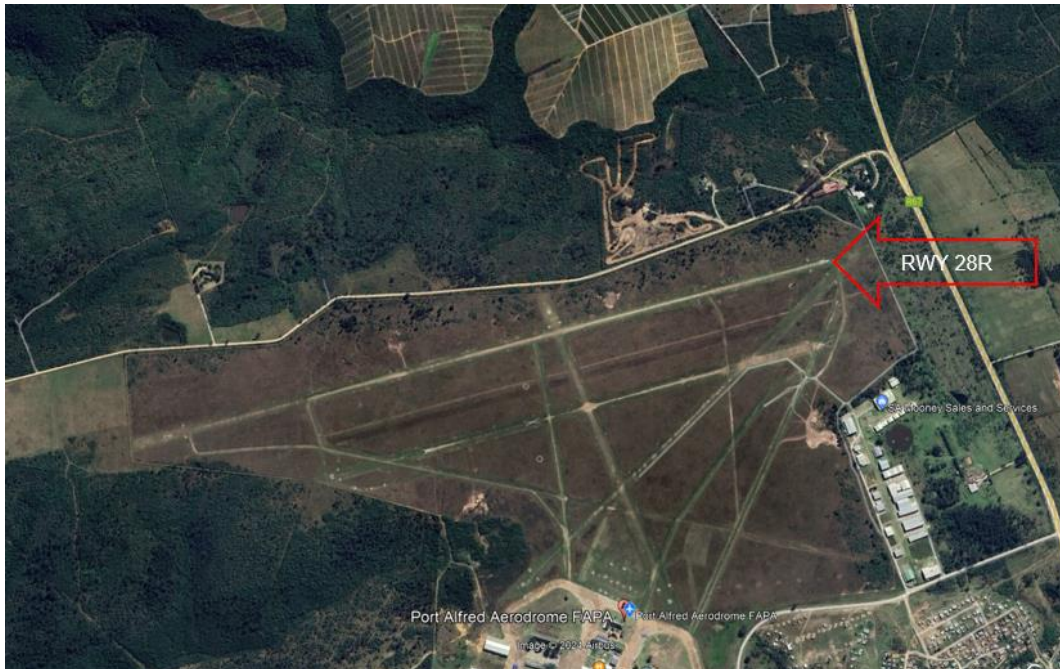


Figure 1: Serious incident location showing RWY28R. (Source: Google Earth)

1.2 Injuries to Persons

1.2.1 ZS-JLD

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

Note: Other means people on the ground.

1.2.2 ZS-JGD

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	2	-	-	2	-
Total	2	-	-	2	-

Note: Other means people on the ground.

1.3 Damage to Aircraft

1.3.1 Both aircraft were not damaged during the serious incident.



Figure 2: File photo of the ZS-JLD aircraft.

(Source: <https://www.airliners.net/photo/43-Air-School/Piper-PA-28R-200-Cherokee-Arrow-II/5469955>)



Figure 3: File photo of the ZS-JGD aircraft.

(Source: <https://www.airliners.net/photo/43-Air-School/Piper-PA-28-180-Cherokee-Archer/4391905/L>)

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information

1.5.1 ZS-JLD Student Pilot

Nationality	South African	Gender	Female	Age	23
Licence Type	Student Pilot Licence (SPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	24 February 2026				
Restrictions	Corrective lenses				
Previous Incidents	None				

Note: Previous serious incidents refer to past serious incidents the pilot was involved in, when relevant to this incident.

Flying Experience:

Total Hours	108
Total Past 24 Hours	0
Total Past 7 Days	1.8
Total Past 90 Days	3.9
Total on Type Past 90 Days	3.9
Total on Type	98

1.5.1.1 The student pilot was initially issued a Student Pilot Licence (SPL) on 9 March 2021. The student pilot's renewed licence was issued on 20 February 2023 with an expiry date of 19 February 2024. The pilot was issued a Class 2 aviation medical certificate on 24 February 2021 with an expiry date of 24 February 2026, and with the restriction to wear corrective lenses.

1.5.2 ZS-JGD Instructor

Nationality	South African	Gender	Male	Age	29
Licence Type	Commercial Pilot Licence (CPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument				
Medical Expiry Date	30 November 2023				
Restrictions	Corrective lenses				
Previous Incidents	None				

Note: Previous incidents refer to past serious incidents the pilot was involved in, when relevant to this serious incident.

Flying Experience:

Total Hours	532.8
Total Past 24 Hours	0
Total Past 7 Days	8.7
Total Past 90 Days	83
Total on Type Past 90 Days	83
Total on Type	83

1.5.2.1 The instructor was initially issued a Commercial Pilot Licence (CPL) on 3 February 2020. The licence was reissued on 25 April 2023 with an expiry date of 31 May 2024. His Class 1 medical certificate was issued on 30 November 2022 with an expiry date of 30 November 2023, and with the restriction to wear corrective lenses.

1.6 Aircraft Information (Source: <https://aviatorinsider.com/airplane-brands/piper-arrow/>)

1.6.1 ZS-JLD

The Piper Arrow is one of the Piper PA 28 Cherokee aircraft family of fairly similar aircraft built by Piper Aircraft Company, mainly designed for flight training and general aviation use. The airplanes are all-metal with single Lycoming engine and Hartzel propeller and are piston-powered with low-mounted wings and one door on the right side. The current models are the Warrior, Archer and Arrow. The Arrow was introduced in 1967 and featured a constant-speed propeller and retractable landing gear.

Airframe: ZS-JLD

Manufacturer/Model	Piper Aircraft Company PA-28R-200	
Serial Number	28R-7535070	
Year of Manufacture	1975	
Total Airframe Hours (At Time of Accident)	14 758	
Last MPI (Date & Hours)	30 June 2023	14 674
Hours Since Last MPI	84	
C of A (Issue Date)	16 November 2006	
C of A Expiry Date	28 February 2024	
C of R (Issue Date) (Present Owner)	27 July 2017	
Type of Fuel Used in the Aircraft	Avgas	
Operating Categories	Training (Part 141)	
Previous Accidents	None	

Note: Previous serious incidents refer to past serious incidents the aircraft was involved in, when relevant to this incident.

Engine:

Manufacturer/Model	Textron Lycoming
Serial Number	L-11837-51A
Part Number	IO-360-C1C
Hours Since New	8 744
Hours Since Overhaul	1 050

Propeller:

Manufacturer/Model	Hartzell HC-B5MA-3M
Serial Number	HBA-1553
Part Number	HC-B5MA-3M
Hours Since New	7 367
Hours Since Overhaul	1 050

1.6.2 ZS-JGD (Source: <https://flylegacyaviation.com/fleet/piper-archer/>)

The Piper Archer PA-28-181 is a four-place, low wing, single-engine airplane equipped with fixed tricycle landing gear, with steerable nose wheel and two main wheels. It is fitted with a Lycoming engine and Hartzel propeller. The aircraft has two twenty-five-gallon tanks which are secured to the leading-edge structure of each wing by screws and nut plates.

Airframe: ZS-JGD

Manufacturer/Model	Piper Aircraft Company PA-28-180	
Serial Number	28-7405169	
Year of Manufacture	1974	
Total Airframe Hours (At Time of Accident)	14 398	
Last MPI (Date & Hours)	30 June 2023	14 352
Hours Since Last MPI	46	
C of A (Issue Date)	21 December 2001	
C of A Expiry Date	31 December 2023	
C of R (Issue Date) (Present Owner)	13 September 2018	

Type of Fuel Used in the Aircraft	Avgas
Operating Categories	Training (Part 141)
Previous Accidents	None

Engine:

Manufacturer/Model	Lycoming
Serial Number	L-17262-36A
Part Number	O-360-A3A
Hours Since New	12 741
Hours Since Overhaul	520

Propeller:

Manufacturer/Model	Sensenich Propellers
Serial Number	101843K
Part Number	76EM8S5
Hours Since New	5 245
Hours Since Overhaul	1 118

1.7 Meteorological Information

1.7.1 The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by Port Alfred AFIS officer recorded at FAPA on 4 August 2023 at 1100Z.

Wind Direction	320°	Wind Speed	10kts	Visibility	10km
Temperature	27°C	Cloud Cover	None	Cloud Base	None
Dew Point	06°C	QNH	1021		

1.8 Aids to Navigation

1.8.1 Both aircraft were equipped with standard navigational equipment as approved by the Regulator (SACAA). There were no records indicating that the navigational system for both aircraft was unserviceable prior to the flights.

1.9 Communication

1.9.1 Both aircraft were equipped with standard communication system as approved by the Regulator. There were no records indicating that the communication system for both aircraft was unserviceable prior to the flights. Both aircraft were in contact with FAPA AFIS officer on 122.0 MHz.

1.10 Aerodrome Information

1.10.1 The serious incident occurred on the late right downwind RWY 28R at FAPA.

Aerodrome Location	Republic of South Africa – Port Alfred Aerodrome
Aerodrome Coordinates	GPS S 33°33'33.83" E 026° 52'57.44"
Aerodrome Elevation	278ft (AMSL)
Runway Designations	10L/28R, 18/36,07/25 and 10R/28L
Runway Dimensions	1828m x 30m, 800m X 30m, 1100m X 30m and 1200 X 30m
Runway Used	Runway 28R
Runway Surface	Grass
Approach Facilities	None
Radio Frequency	122.00MHz

1.10.2 Port Alfred airspace is a Class G with an aerodrome flight information service (AFIS) provided by 43 Air School on 122.0 MHz. Class G airspace is an uncontrolled airspace in which personnel manning the airspace are AFIS officers who do not give runway clearance, unlike air traffic control (ATC) officers who clear aircraft for take-offs and landings. AFIS officers only inform the pilots that the runway is clear; it is at the pilot's discretion to proceed to take-off or land.

1.11 Flight Recorders

1.11.1 The two aircraft were not fitted with a cockpit voice recorder (CVR) or a flight data recorder (FDR), and neither was required by regulation to be fitted to this type of aircraft.

1.12 Wreckage and Impact Information

1.12.1 Not applicable.

1.13 Medical and Pathological Information

1.13.1 Not applicable.

1.14 Fire

1.14.1 Not applicable.

1.15 Survival Aspects

1.15.1 This serious incident was considered survivable as there was no damage to both aircraft, and the manoeuvre taken by ZS-JGD did not endanger the pilots.

1.16 Tests and Research

1.16.1 None.

1.17 Organisational and Management Information

- 1.17.1 The flights were conducted in accordance with the provisions of Part 141 of the CAR 2011 as amended.
- 1.17.2 The operator of ZS-JLD and ZS-JGD was issued an Approved Training Organisation (ATO) Certificate on 21 November 2019 with an expiry date of 30 November 2024.
- 1.17.3 The aircraft were maintained by an aircraft maintenance organisation (AMO) that was licensed by the Regulator. The AMO certificate was issued on 1 November 2022 with an expiry date of 30 September 2023.

1.18 Additional Information

- 1.18.1 According to the training file, the student pilot started with her training on 1 April 2021, undertaking the Integrated Courses Version 1.4 (185Hr) IATPL / ICPL (Multi Engine Instrument Rating Course). On 8 April 2021 with 4.8 hours, the student pilot underwent remedial training because she was struggling to maintain the correct aircraft attitude to fly straight and level. She was also having difficulty understanding the techniques during straight and level flight. On 10 April 2021, the student pilot conducted a 1.3-hour additional flight to correct the identified issues. After the remedial flight, it was recommended that she progresses to the next lesson.
- 1.18.2 On 3 May 2021 with 17.8 hours, the student pilot was having difficulties with consistently configuring the aircraft for final approach, as well as maintaining a stable approach from the base leg to final approach and landing. It was stated on the training flight that when she deviated from the centreline, she banked excessively to re-intercept the centreline without considering her distance from the ground. The instructor needed to constantly remind her to maintain correct final approach path. On 4 May 2021, it was recommended that she needed to undergo two remedial training flights, each with a duration of 1.2 hours with a different instructor, the student pilot underwent the additional flights for 1.1 hours (7 May 2021), 0.5 hours (11 May 2021), and for 0.8 hours (13 May 2021), but the issues could not be resolved.
- 1.18.3 On 13 May 2023 with 21.4 hours, the student pilot was still having difficulties with consistently maintaining circuit geometry and altitude, intercepting and aligning the aircraft to the runway centreline, maintaining a consistent line on the aircraft until touchdown, and not being able to make the necessary power and attitude changes to maintain the correct descent path. It was decided that she would conduct four additional flights – two in the simulator and two in the aircraft – for circuit training to assess her application of the knowledge and to relearn the landing technique. The additional flights undertaken were 1.1 hours on 22 May 2021 in the

aircraft, 1.0 hour in the simulator on 23 May 2021, and 1.2 hours in the aircraft on 25 May 2021; however, the issues could not be resolved.

- 1.18.4 On 25 May 2021 at 24.7 hours, the student pilot was having difficulties with landing whilst on the circuit; she was unable to judge the round-out height and to maintain control of the aircraft during the flare without the instructor's assistance. She appeared to have poor depth perception, and she was slow to make corrections to land safely. The student pilot had to undergo another remedial training for two additional flights with the flight manager responsible for training. The objective was to correct the flight challenges and to prepare the student pilot for the first solo flight at 25 and 26 hours.
- 1.18.5 On 27 May 2021, an email was sent to the student pilot's sponsor informing them that the student pilot had reached her fourth remedial training review with a total of 24.7 hours (22.5 hours of dual and 2.2 hours in the simulator). Also, that the student pilot had not achieved the objectives of the second circuit lesson because of the inconsistencies in her landing technique. The sponsor was also informed of the student pilot's third remedial training review. The student pilot passed her first flight assessment at 20.1 hours, which meant that she had 6.1 hours of circuit training before she reached the flying school's limit of 25.0 dual hours training and before she could conduct her first solo. The instructor informed the sponsor that he recommends two additional flights with himself as the flight manager responsible for training. During these two flights, he would prepare the student pilot for her first solo flight. He also stated that the school will do all they can to assist the student pilot. The two additional flights conducted were 1.2 hours on 6 July 2021 and 1.6 hours on 7 July 2021, and the student pilot's difficulties were corrected. The student pilot then conducted her first solo flight after 25.3 hours of dual instruction flights on 7 July 2021. The student pilot then flew again on 4 September 2021, continued flying in October, November and December, and accumulating approximately 50 flying hours.
- 1.18.6 On 7 January 2022 with 73.3 hours, the student pilot was still unable to navigate a safe solo standard. She also seemed overwhelmed by the workload of navigational flight exercises. She was unable to keep up with all the navigation tasks. During the navigational flight exercises, she did not trim the aircraft effectively in all axes which resulted in altitude deviations of up to 500 feet and 30 degrees, she had difficulty reading the map and could not realise when the aircraft was drifting, and could not confirm the direction in which she was flying. The student pilot had to undergo remedial training of two additional flights to practise navigational techniques, time, map and ground big picture to small ground picture exercises as well as to help her improve workload management and aircraft control. The additional flights were 1.5 hours in a simulator on 12 January 2022, and 2.5 hours in the aircraft on 18 January 2022. The difficulties were corrected during the remedial training.

- 1.18.7 On 1 September 2022 with 93.1 hours, the student pilot was having difficulty landing the Piper Arrow (P28R) aircraft; her landings were inconsistent. She was not rounding out at the correct height as she was over controlling the aircraft when flaring, which resulted in balloon or hard landings. She also had difficulty with steep turns. She then had to undergo remedial training of three additional flights to get re-checked on her solo flight capabilities with two 1.2-hour flights on a P28R aircraft and a 1.2 solo flight checks on a P28R. The additional flights were conducted on 5, 6 and 7 November 2022 and all the objectives were achieved.
- 1.18.8 On 4 August 2023 at 108.4 hours, the student pilot was involved in air proximity with another aircraft that was ahead of her in the circuit whilst routing to the east of FAPA on a solo navigational flight. She lost sight of the aircraft in front of her in the circuit, converged towards the runway in proximity to another aircraft when it turned base RWY 28R. The other traffic noticed the student pilot and immediately made a descent to avoid a collision and landed without any further incidents. The student pilot did not notice the other aircraft; she continued with the solo navigational flight towards the east. To remedy the air proximity incident, the student pilot is scheduled to conduct circuits with a radio personnel who will supervise her when the circuit is busy. In this additional flight, the student pilot is to be a passenger in three flights which include circuits, navigation and general flying. Thereafter, the student pilot can conduct the navigational flight with her instructor.
- 1.18.9 According to the student pilot's logbook, her training exercises are far in-between (long breaks). She had training on 25 May 2021, followed by a month and 11 days break on 6 July 2021; this is whilst she was struggling with *Exercise 12 and 13 Circuits and Landing*. This was followed by training on 16 December 2021 and 11 January 2022 with approximately a one-month break in-between. Thereafter, the training on 17 February 2022 and 12 June 2022 was three months and 25 days apart. The training on 24 June 2022 was followed by the training on 2 November 2022 with four months and 10 days break. The longest break was from 15 November 2022 to 1 August 2023, with eight months and 16 days break. The student pilot returned to the flying school on 1 August 2023 and conducted a navigational flight with an instructor. She was conducting a solo navigational flight when the air proximity occurred.
- 1.18.10 *ICAO Doc 4444 – Procedures for Air Navigation Services, Air Traffic Management defines an AIRPROX as such;*
- “Aircraft proximity (AIRPROX). A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. An aircraft proximity is classified as follows:*

A-Risk of collision. The risk classification of an aircraft proximity in which serious risk of collision has existed.

B-Safety not assured. The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised.

C-No risk of collision. The risk classification of an aircraft proximity in which no risk of collision has existed. Risk not determined.

D-The risk classification of an aircraft proximity in which insufficient information was available to determine the risk involved, or inconclusive or conflicting evidence precluded such determination.”

- This incident was classified as A AIRPROX as there was a serious risk of collision; ZS-JLD student pilot was not aware of the risk. Collision was avoided because the instructor on ZS-JGD immediately made a descent when he noticed ZS-JLD was in proximity to their aircraft.

1.18.11 **South African-Civil Aviation Technical standards (SA-CATS)**

61.02.7 DISCONTINUANCE OF FLIGHT TRAINING

3. Failure to make satisfactory progress after having flown solo

(1) *A student pilot assessed in terms of section 2(5) of technical standard 61.02.5 who fails to show satisfactory progress shall undergo a flight assessment by the CFI of the ATO where he or she is receiving flight training.*

(2) *If the CFI cannot recommend solo flight for the student pilot, then the following shall apply:*

(a) *The student pilot shall be informed in writing that a potential safety risk has been identified and that CAR 61.02.7 may be brought into effect.*

(b) *A training program of not more than 3 hours dual flight instruction shall be designed and implemented to address the knowledge, skills and attitude of the student.*

(c) *Once the additional 3 hours of dual flight instruction are flown a recommendation must be made by the responsible flight instructor for continued flight training. If a recommendation cannot be made then the student must be referred for assessment by a DFE appointed for this purpose by the Director.*

(3) *At any point during flight training where the student pilot is assessed by the flight instructor to be a potential safety then the student pilot shall undergo a flight assessment by a DFE appointed for this purpose by the Director.*

(4) *If the DFE cannot recommend continued flight training for the student pilot, then the following shall apply:*

(a) *The student pilot shall be informed in writing that a potential safety risk has been identified and that CAR 61.02.7 may be brought into effect.*

(b) *A training program of not more than 3 hours dual flight instruction shall be designed and implemented to address the knowledge, skills and attitude of the student pilot.*

(c) *Once the additional 3 hours of dual flight instruction are flown a recommendation must be made by the responsible flight instructor for continued flight training. If a recommendation cannot be made then the student must be referred for assessment by a DFE appointed for this purpose by the Director.*

1.18.12 During the remedial training exercises, the student pilot was able to correct the issues after flying with the flight training manager; and had not reached a point where she would have to fly with a designated flight instructor (DFE) as stated in the Technical Standards quoted above.

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 with respect to this incident. This shall not be read as apportioning blame or liability to any organisation or individual.

2.2. Analysis

- 2.2.1 *Although there were two aircraft involved in this incident, a focus is on the student pilot (on ZS-JLD) as her actions led to this serious incident.* The instructor of ZS-JGD had a valid Commercial Pilot Licence with a Grade 3 instructor rating. He also had a valid medical certificate.
- 2.2.2 The student pilot started her flight training on 1 April 2021. A week later on 8 April 2021, she had to undergo remedial training; this was her first remedial training. Three weeks later on 3 May 2021, she had to undergo additional remedial training in which her difficulties were not resolved. A week and three days later on 13 May 2021, she had to undergo more remedial training, but the issues were still not resolved. A week and five days later on 25 May 2021 she was still having difficulties and more remedial training was undertaken. After all the difficulties were resolved with the flight training manager, she was able to conduct her first solo navigational flight at 25.3 hours on 7 July 2021.
- 2.2.3 Fine weather conditions prevailed at the time of the flight; the weather had no bearing to this incident.
- 2.2.4 The student pilot had long breaks between trainings, with the longest break being eight months. When student pilots have long breaks between trainings, they are likely to regress. The student pilot was involved in an air proximity after an eight months and 10 days break since the last training. She conducted a single flight with an instructor, followed by the solo navigational flight, which was the incident flight.
- 2.2.5 The student pilot (ZS-JLD) did not keep sight of the traffic which was in front of her (ZS-JGD), she did not fly a proper circuit and she converged towards the runway which led to an air proximity with ZS-JGD when turning right base RWY 28R. The instructor noticed ZS-JLD and immediately took control of the aircraft from the student pilot and made a descent to avoid a collision. Thereafter, he safely landed the aircraft. ZS-JLD continued with the solo navigational flight towards the east without any further incident.

3. CONCLUSION

3.1. General

From the available evidence, the following findings, causes and contributing factors were made with respect to this incident. 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 incident. The findings are significant steps in this incident sequence, but they are not always causal or indicate deficiencies.
- **Causes** — are actions, omissions, events, conditions, or a combination thereof, which led to this incident.
- **Contributing factors** — are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the incident occurring, or would have mitigated the severity of the consequences of the incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil, or criminal liability.

3.2. Findings

ZS-JGD

- 3.2.1 The instructor was initially issued a Commercial Pilot Licence (CPL) on 3 February 2020. The licence was reissued on 25 April 2023 with an expiry date of 31 May 2024. His Class 1 medical certificate was issued on 30 November 2022 with an expiry date of 30 November 2023, with a restriction to wear corrective lenses.
- 3.2.2 The last mandatory periodic inspection (MPI) on the aircraft was certified on 30 June 2023 at 14 352.00 total airframe hours. The last 50-hour inspection on the aircraft was certified on 2 August 2023 at 14 396.00 hours. The aircraft had accumulated 14 398.00 hours at the time of the serious incident, which meant that it was flown a further 2.0 hours after the last MPI.
- 3.2.3 The C of A was initially issued on 21 December 2001. The latest C of A had an expiry date of 31 December 2023.
- 3.2.4 The C of R was issued to the present owner on 13 September 2018.

ZS-JLD

- 3.2.5 The student pilot was initially issued a Student Pilot Licence (SPL) on 9 March 2021. The licence was reissued on 20 February 2023 with an expiry date of 19 February 2024. Her Class 2 medical certificate was issued on 24 February 2021 with an expiry date of 24 February 2026 with a restriction to wear corrective lenses.
- 3.2.6 The last mandatory periodic inspection (MPI) on the aircraft was certified on 20 July 2023 at 147 21.00 total airframe hours. The aircraft had accumulated 14 758.00 hours at the time of the serious incident, which meant that it was flown a further 37.0 hours after the last MPI.
- 3.2.7 The Certificate of Airworthiness (C of A) was initially issued on 16 November 2006. The latest C of A had an expiry date of 28 February 2024.

- 3.2.8 The Certificate of Registration (C of R) was issued to the present owner on 15 November 2002.
- 3.2.9 The student pilot reached her first solo flight at 25.3 dual training hours. She needed remedial training interventions at almost every phase of her training.
- 3.2.10 The training is marked with extended breaks ranging from one month to eight months at a time.
- 3.2.11 At the time of the incident, the student pilot had accumulated 108.3 hours.
- 3.2.12 The student pilot (ZS-JLD) lost sight of traffic in front of her (ZS-JGD), converged towards the runway and ended in proximity to ZS-JGD when turning right base RWY 28R. The instructor on ZS-JGD observed ZS-JLD and immediately made a descent to avoid a collision before landing the aircraft safely. ZS-JLD continued with the solo navigational flight without any further incident.

3.3. Probable Cause/s

- 3.3.1. The student pilot did not keep sight of the traffic in front of her, she did not fly a proper circuit and converged towards the runway on late right downwind which reduced separation with the preceding traffic that was turning right base RWY 28R.

3.4. Contributory Factor/s

- 3.4.1. Lack of traffic awareness.
- 3.4.2. Disregard of standard circuit pattern.

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/s

- 4.2.1 None.

5 APPENDICES

5.1 None.

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