

AIRCRAFT SERIOUS INCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:		CA18/3/2/1453					
Aircraft Registration		ZT-RFJ (R44) and ZU-TEX (SLING 4)		Date of Incident		20 August 2024		Time of Incident		1421Z	
Type of Aircraft		Robinson R44 II and Sling 4				Type of Operation		Part 141 and Part 148			
Pilot-in-Command Licence Type (ZT-RFJ)				Commercial Pilot Licence		Age	29	Licence Valid		Yes	
Pilot-in-Command Flying Experience				Total Flying Hours		1 730.0	Hours on Type		804.3		
Pilot-in-Command Licence Type (ZU-TEX)				Commercial Pilot Licence		Age	56	Licence Valid		Yes	
Pilot-in-Command Flying Experience				Total Flying Hours		3 715.5	Hours on Type		550.0		
Last Point of Departure (ZT-RFJ)				Grand Central Aerodrome (FAGC), Gauteng Province							
Last Point of Departure (ZU-TEX)				Grand Central Aerodrome (FAGC), Gauteng Province							
Next Point of Intended Landing (ZT-RFJ)				Grand Central Aerodrome (FAGC), Gauteng Province							
Next Point of Intended Landing (ZU-TEX)				Tedderfield Aerodrome (FATA), Gauteng Province							
Number of People On-board		2+0 and 1+1	Number of People Injured		0	Number of People Killed		0	Other (On Ground)		0
Damage to Aircraft				None							
Location of the incident site with reference to easily defined geographical points (GPS readings if possible)											
Early left downwind Runway 35 helicopter circuit at FAGC at GPS co-ordinates: 25° 59' 28" South 28° 07' 23" East, at an elevation 5 056 feet											
Meteorological Information		Surface wind: 050°/05 kts; temperature: 24°C; dew point: -1°C; visibility: 8 000 haze; QNH: 1030Pa									
Synopsis											
<p>On Tuesday afternoon, 20 August 2024, a flight instructor (FI) and a student pilot (SP) on-board a Robinson R44 Raven II helicopter with registration ZT-RFJ lifted-off from Taxiway 35 at Grand Central Aerodrome (FAGC) in Gauteng province with the intention to conduct a circuit training flight and, thereafter, land back at FAGC. Shortly after, a Sling 4 aircraft with registration ZU-TEX with two persons on-board, (a test pilot and an engineer) were conducting a test flight. The two flights were conducted under visual flight rules (VFR) by day and under the provisions of Part 141 (ZT-RFJ) and 148 (ZU-TEX) of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The test pilot on-board a Sling 4 aircraft requested an early left turn after take-off from Runway 35. The air traffic control officer (ATCO) approved the request and notified the test pilot about the R44 helicopter which was in the left circuit. The test pilot read back to the ATCO that he had the R44 helicopter in sight and will keep a look out. Approximately 1 minute and 15 seconds later, the FI on the R44 helicopter notified the ATCO that the Sling aircraft had just cut in front of them and that they had descended to a lower altitude to avoid colliding with it. The ATCO apologised to the FI, and the test pilot reported zone outbound approximately a minute later.</p>											

Probable Cause			
The ATCO permitted the Sling 4 test pilot to conduct an early left turn after take-off whilst the R44 helicopter was in the left circuit for Runway 35 but did not warn the FI (on R44 helicopter) of the proximity of the Sling 4 aircraft. The test pilot lost sight of the R44 helicopter and cut in front of it (helicopter), which resulted in reduced aerodrome separation.			
Contributing Factors			
<ol style="list-style-type: none"> 1. Poor decision-making and incomplete traffic information by the ATCO. (The test pilot on-board a Sling 4 aircraft was informed about the R44 helicopter, but the FI on-board the R44 helicopter was not informed about the Sling 4 aircraft). 2. The test pilot on-board the Sling 4 aircraft lost sight of the R44 helicopter (ZT-RFJ). 			
SRP Date	8 October 2024	Publication Date	9 October 2024

Occurrence Details

Reference Number : CA18/3/2/1453
Occurrence Category : Category 2
Type of Operation : Training (Part 141) & Test Flight (Part 148)
Name of Operator : NAC Training & Sling Aircraft Company
Aircraft Registration : ZT-RFJ & ZU-TEX
Aircraft Make and Model : Robinson 44 & Sling 4
Nationality : South African
Place : Early left downwind Runway 35 helicopter circuit at FAGC
Date and Time : 20 August 2024 at 1421Z
Injuries : None
Damage : None

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) was notified of the occurrence on 20 August 2024. 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 Operator in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. 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:
Serious Incident — this investigated serious incident
Aircraft — the Robinson R44 II and Sling 4 high wing involved in this serious incident
Investigation — the investigation into the circumstances of this serious incident
Pilot — the pilot 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

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
AIRPROX	Aircraft Proximity
ANSP	Air Navigation Services Provider
ATCO	Air Traffic Control Officer
ATF	Authority to Fly
ATO	Approved Training Organisation
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CPL	Commercial Pilot Licence
CRS	Certificate of Release to Service
BRS	Ballistic Recovery System
GPS	Global Positioning System
Ft	Feet
FI	Flight Instructor
hPa	Hectopascal
Kt	Knots
M	Metres
METAR	Meteorological Aerodrome Report
MHz	Megahertz
NM	Nautical Miles
RWY	Runway
SP	Student Pilot
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
TCAS	Traffic Collision Avoidance System
TWY	Taxiway
QNH	Altitude Above Mean Sea Level
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 Tuesday afternoon, 20 August 2024, a flight instructor (FI) and a student pilot (SP) on-board a Robinson R44 Raven II helicopter with registration ZT-RFJ were conducting a circuit training flight from Grand Central Aerodrome (FAGC) in Gauteng province with the intention to land back at FAGC. The flight was conducted under visual flight rules (VFR) by day and under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended. Another aircraft, a Sling 4 aircraft with registration ZU-TEX with two persons on-board, a test pilot and an aircraft maintenance engineer (AME), were conducting a test flight from FAGC to Tedderfield Aerodrome (FATA) in Gauteng province. The flight was conducted under visual flight rules (VFR) by day and under the provisions of Part 148 of the CAR 2011 as amended.

1.1.2 The FI on the R44 helicopter broadcasted his intentions to lift-off from Taxiway 35 on FAGC very high frequency (VHF) 122.8 Megahertz (MHz). The air traffic control officer (ATCO) approved the request and told the FI to lift-off at his discretion. The ATCO also provided the FI with the weather update and directed the FI to report left downwind at an altitude of 6 000 feet (ft) or below. The FI read back the clearance correctly and proceeded to lift-off. About 18 seconds later, the test pilot on the Sling 4 aircraft contacted ATCO and reported ready for take-off on Runway 35. The ATCO cleared the Sling 4 aircraft for take-off and provided the weather update as well as instructed the test pilot to report zone outbound to the south of FAGC. The test pilot read back part of the clearance correctly and requested an early left turn after take-off. The ATCO approved the test pilot's request and gave traffic information about the R44 helicopter which was on the left-side circuit. The test pilot reported that he had the traffic's (R44) visual, and he would be on a look out for it.

1.1.3 After about 1 minute and 15 seconds, the FI on the R44 helicopter noticed a traffic collision avoidance system (TCAS) traffic alert warning and saw the Sling 4 aircraft fly past in front of their flight path. The FI enquired from the test pilot on a Sling 4 aircraft if he knew that he flew past his circuit flight path. The test pilot responded that he received an early left turn clearance; he then asked if the R44 helicopter was on the right-side circuit. The FI responded that he was on the left-side circuit. The FI then informed the ATCO that the fixed wing (Sling 4) aircraft had just flew past in front of them, and as a result, he descended to a lower altitude to avoid colliding with the aircraft. The ATCO apologised to the FI and told him that the test pilot was advised of the traffic (R44 helicopter). The FI reported left downwind, and the ATCO directed the FI to report final approach Taxiway 35 as number 1. Later, the test pilot reported zone outbound. Both aircraft were not damaged during this serious incident, and no person was injured.

1.1.4 The serious incident occurred during daylight on early left downwind Runway (RWY) 35 at

FAGC at Global Positioning System (GPS) co-ordinates determined to be: 25° 59' 28" South
28° 07' 23" East, at an elevation 5056 feet (ft)



Figure 1: FAGC layout. (Source: Google Earth)

1.2 Injuries to Persons

1.2.1 Robinson R44 helicopter (ZT-RFJ)

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

Note: Other means people on the ground.

Sling 4 aircraft (TZU-TEX)

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fata	-	-	-	-	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	1	-	1	2	-
Total	1	-	1	2	-

1.3 Damage to Aircraft

1.3.1 The R44 helicopter and the Sling 4 aircraft were not damaged.

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information

1.5.1 Flight Instructor (FI) on R44 helicopter:

Nationality	South African	Gender	Male	Age	29
Licence Type	Commercial Pilot Licence (CPL) H				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Night and Instructor				
Medical Expiry Date	31 January 2025				
Restrictions	Suitable corrective lenses for defective distant vision (VDL)				
Previous Incidents	None				

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

Flying Experience:

Total Hours	1 730
Total Past 24 Hours	0
Total Past 7 Days	0
Total Past 90 Days	75
Total on Type Past 90 Days	50
Total on Type	804.3

1.5.2 Student Pilot (SP) on-board the Robinson R44 helicopter:

Nationality	South African	Gender	Male	Age	50
Licence Type	Student Pilot Licence (SPL) H				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	30 September 2025				
Restrictions	Suitable corrective lenses for VDL				
Previous Incidents	None				

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

Flying Experience:

Total Hours	25.9
Total Past 24 Hours	1.0
Total Past 7 Days	2.9
Total Past 90 Days	7.0
Total on Type Past 90 Days	7.0
Total on Type	25.9

1.5.3 Test pilot on-board a Sling 4 aircraft:

Nationality	South African	Gender	Male	Age	56
Licence Type	Commercial Pilot Licence				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument and Test Pilot (Class 2)				
Medical Expiry Date	31 July 2025				
Restrictions	Suitable corrective lenses for VDL				
Previous Incidents	None				

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

Flying Experience:

Total Hours	3 715.5
Total Past 24 Hours	1.6
Total Past 7 Days	11.8
Total Past 90 Days	50.5
Total on Type Past 90 Days	25.5
Total on Type	550

1.5.4 Air Traffic Control Officer (ATCO):

Nationality	South African	Gender	Female	Age	37
Licence Type	Air Traffic Services (ATS)				
Licence Issue & Expiry Date	28 November 2016		28 November 2024		
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Aerodrome Control				
Medical Class & Expiry Date	Class 3; 31 March 2027				
Restrictions	None				

Experience:

Ratings Issued

Name	Issue Date	Expiry Date
Aerodrome Control	5 April 2024	4 April 2025

Rating validation

Rating	Unit	Last proficiency	Expiry Date
Aerodrome Control	FAGC	5 April 2024	4 April 2025
Aerodrome Control	FAPE	13 December 2023	12 December 2024

Experience

Years Air Traffic Assistant	6 years
Years Aerodrome Control	2 years
Total years in Air Traffic Service	8 years

1.6 Helicopter and Aircraft Information

1.6.1 Robinson R44 Raven II Helicopter Description (Source: Pilot's Operating Handbook [POH])

The Robinson R44, Raven II is four-seater light helicopter powered by a Lycoming IO-540-EA1A5 six-cylinder fuel injected engine, bearing serial number L-27974-48E. The helicopter comprises skid-type landing gear and has a counter-clockwise rotating two-bladed main rotor with a diameter of 10.06 metres (m), and a two-bladed tail rotor with a diameter of 1.47m. A cyclic control stick is located between the front seats and operated via a control grip in front of the pilot. The control grip is fitted to a cross tube connected to the cyclic control stick. A collective control lever is located to the left of each front seat; a twist-grip throttle control is located on each collective lever. The revolutions per minute (RPM) governor assists in controlling the engine RPM under normal conditions and can be over-ridden by the pilot using the throttle twist-grip.



Figure 2: ZT-RFJ helicopter.

(Source: https://url.za.m.mimecastprotect.com/s/K8LXC58wjmt6ZqVqhzfoCk_6Kj)

Airframe:

Manufacturer/Model	Robinson Helicopters Company / R44 Raven II	
Serial Number	30075	
Year of Manufacture	2021	
Total Airframe Hours (At Time of Serious incident)	1 608.24	
Last Inspection (Date & Hours)	9 November 2023	1 566.69
Hours Since Last MPI	41.55	
CRS Issue Date	9 November 2023	
C of A (Issue Date & Expiry Date)	10 June 2021	30 June 2025
C of R (Issue Date) (Present Owner)	18 August 2023	
Type of Fuel Used	Avgas 100LL	
Operating Category	Part 141	
Previous Incidents	None	

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

Engine:

Manufacturer/Model	Textron Lycoming / IO-540-AE1A5
Serial Number	L-27974-48E
Part Number	3261
Hours Since New	1 960.3
Hours Since Overhaul	TBO not yet reached

1.6.2 Sling 4 Aircraft Description (Source: POH)

The Sling 4 with high wing is a four-seater (two pairs of side-by-side seats) aluminium and composite aircraft manufactured by Sling Aircraft (Pty) Ltd. The aircraft is powered by a Rotax 916iS turbocharged engine, driving the MTV-6-A hydraulic constant-speed propeller. The aircraft is equipped with a Ballistic Recovery System (BRS) Aerospace parachute rescue system.

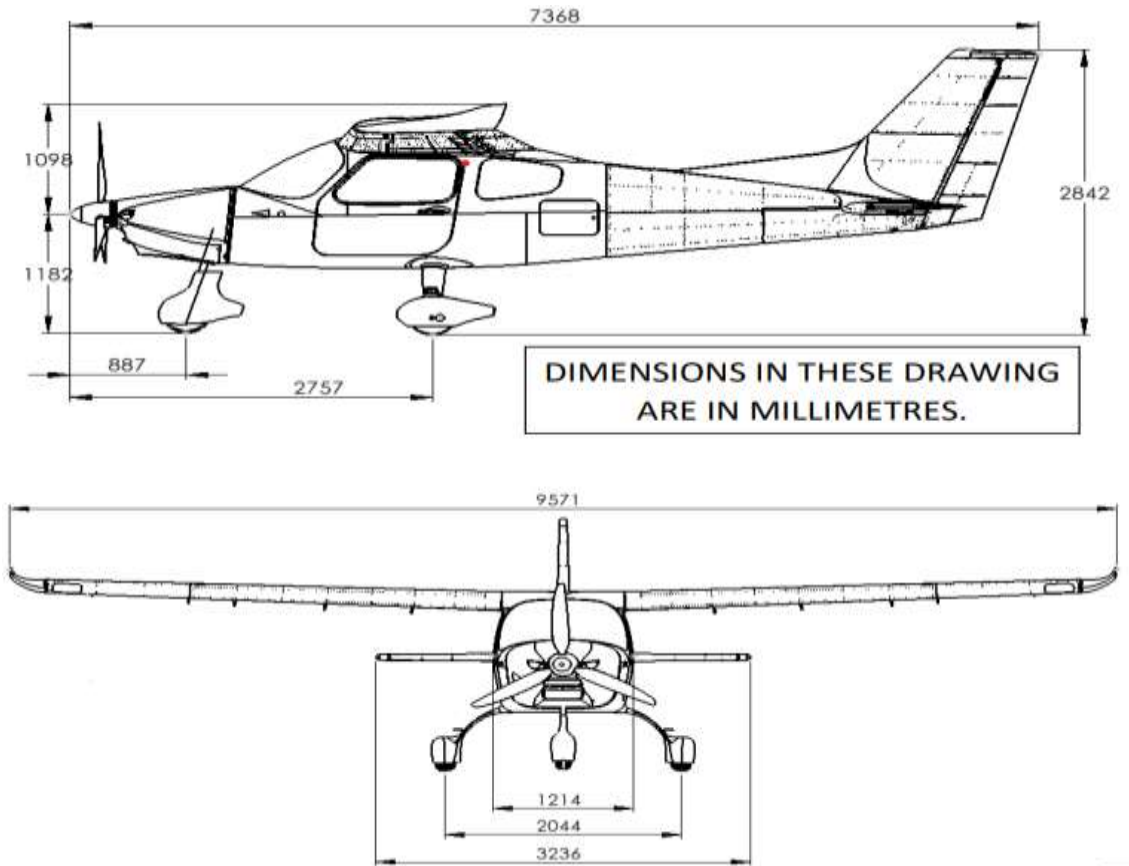


Figure 3: The aircraft illustration. (Source: POH)

Airframe:

Manufacturer/Model	Sling Aircraft (Pty) Ltd / Sling 4	
Serial Number	016	
Year of Manufacture	2024	
Total Airframe Hours (At Time of Serious incident)	4.5	
Last Inspection (Date & Hours)	Not yet reached	N/A
Hours Since Last MPI	Not yet reached	
CRS Issue Date	Not yet reached	
ATF (Issue Date & Expiry Date)	Not yet issued	
C of R (Issue Date) (Present Owner)	Not yet issued	
Type of Fuel Used	Unleaded 95 Octane fuel	
Operating Category	Part 148	
Previous Incidents/Accidents	None	

Engine:

Manufacturer/Model	Rotax / 916iS
Serial Number	10001938
Part Number	16165
Hours Since New	4.5
Hours Since Overhaul	TBO not yet reached

Propeller:

Manufacturer/Model	MT Propeller MTV-6-A / 190-69
Serial Number	241294
Part Number	16701
Hours Since New	4.5
Hours Since Overhaul	TBO not yet reached

1.6.3 The aircraft was still new and undergoing a test flight. The aircraft was assigned a temporary registration ZU-TEX.

1.7 Meteorological Information

1.7.1 The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS), recorded at FAGC on 20 August 2024 at 1400Z. FAGC is located 1.9 nautical miles (nm) from the serious incident site.

Wind Direction	050°	Wind Speed	5kt	Visibility	8000m
Temperature	24°C	Cloud Cover	None	Cloud Base	none
Dew Point	-1°C	QNH	1030 hPa		

1.8 Aids to Navigation

1.8.1 The R44 helicopter (ZT-RFJ) and the Sling 4 aircraft (ZU-TEX) were equipped with standard navigational equipment as approved by the Regulator (SACAA). There were no records indicating that the navigational equipment was unserviceable prior to the flights.

1.9 Communication

1.9.1 The R44 helicopter and the Sling 4 aircraft were equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system prior to the serious incident. Both the Robinson R44 helicopter and the Sling 4 aircraft were communicating on the very high frequency (VHF) 122.80-MHz.

1.10 Aerodrome Information

1.10.1 The serious incident occurred in the FAGC airspace on the early left downwind for RWY35.

Aerodrome Name	Grand Central Aerodrome (FAGC)
Aerodrome Location	Gauteng Province
Aerodrome Status	Licensed
Aerodrome GPS coordinates	25°59'21.86" South, 28°08'22.55" East
Aerodrome Elevation	5 342 feet
Runway Headings	35/17
Dimensions of Runway Used	1 823m x 23m
Heading of Runway Used	35
Surface of Runway Used	Asphalt
Approach Facilities	Non-directional beacon (NDB)
Radio Frequency	122.8 MHz

1.11 Flight Recorders

1.11.1 The Robinson R44 Raven II helicopter and the Sling 4 aircraft were neither equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), nor were they required by regulation to be fitted on them.

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 There was no fire.

1.15 Survival Aspects

1.15.1 The serious incident was considered survivable as there was no damage to the aircraft or the helicopter.

1.16 Tests and Research

1.16.1 ICAO Doc 4444 – Procedures for Air Navigation Services, Air Traffic Management defines an AIRPROX as:

“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.”

1.16.2 The Robinson R44 Raven II helicopter and the Sling 4 aircraft were involved in an AIRPROX on early left downwind for RWY35 at FAGC; the helicopter was in the circuit and the Sling 4 aircraft took off from RWY35 and executed an early left turn. Consequently, the FI on the helicopter received a TCAS traffic alert warning and descended to avoid colliding with the Sling 4 aircraft. The AIRPROX occurred in FAGC airspace which is a Class D airspace. The SACAA Standards and Procedures Manual, Section 6, Separation Methods and Minima Chapter 1 Standard separation may be reduced when authorised by the Civil Aviation Authority and published in the station standing instruction manual.

Reduced Separation:

In the vicinity of aerodromes, the standard separation minima may be reduced if:

- a) Adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to this controller;*
- b) Each aircraft is continuously visible to flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation;*
- c) In the case of one aircraft following another, the flight crew of the succeeding aircraft reports that the other aircraft is in sight and separation*

1.16.3 The test pilot on-board a Sling 4 aircraft was given traffic information about the R44 helicopter which was on the left-side circuit at 6 000ft above mean sea level (AMSL). The test pilot

1.17 Organisational and Management Information

National Airways Corporation Training

1.17.1 The Robinson R44 Raven II helicopter training flight was conducted under the provisions of Part 141 of the South African CAR 2011 as amended.

1.17.2 The operator had an Approved Training Organisation (ATO) Certificate which was issued by the SACAA on 28 August 2023 with an expiry date of 30 September 2028.

1.17.3 The helicopter was maintained by the aircraft maintenance organisation (AMO) with a valid AMO Certificate that was issued on 13 December 2023 with an expiry date of 31 December 2024.

Sling 4 Aircraft

1.17.4 The Sling 4 aircraft test flight was conducted under the provisions of Part 148 of the South African CAR 2011 as amended.

1.17.5 The Sling 4 aircraft had accrued 4.5 hours at the time of the serious incident and had not reached the maintenance schedule.

ATCO Organisation

1.17.6 The ATCO was employed by the Air Navigations Services Provider (ANPS) licensed by the Regulator. The ANSP deploys the ATCO at FAGC air traffic service unit (ATSU). FAGC ATSU was issued an ATSU Certificate on 15 January 2024 with an expiry date of 31 January 2025.

1.18 Additional Information

1.18.1 None.

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

2.2. Analysis

- 2.2.1. The Robinson 44 II was in the helicopter left-side circuit for Runway 35 when the test pilot requested an early left turn after departure from Runway 35. The ATCO approved the request and informed the test pilot about the helicopter at 6 000ft on the left-side circuit. The ATCO did not inform the R44 helicopter FI of the Sling 4 test pilot's intentions to turn left early after take-off from Runway 35. During the communication with the ATCO, the Sling 4 test pilot confirmed sight of the helicopter and that he would keep a lookout for it, but he went on to cut in front of the helicopter's path. When the FI enquired from the Sling 4 test pilot, he responded that he was granted an early left turn clearance after take-off. The test pilot asked the FI if they were on the right-side circuit. Post serious incident, the Sling 4 test pilot stated that he momentarily lost sight of the helicopter.
- 2.2.2. If the ATCO had denied the request to turn left early after take-off, the Sling 4 test pilot could have flown a normal circuit and routed south-west at 6 300ft on the late left downwind Runway 35. The ATCO informed the Sling 4 test pilot about the traffic (R44 helicopter) in the circuit but did not inform the FI about the Sling 4 aircraft that was cleared to turn left early after departure from Runway 35; see 1.16.2 regarding the SACAA Standards and Procedures Manual, Section 6, Chapter 1. The Sling 4 aircraft cut in front of the helicopter whilst climbing; this compromised the safety of the helicopter and the aircraft. There was a risk of collision had the FI on the helicopter not seen the Sling 4 and descend to avoid collision.
- 2.2.3. The R44 helicopter and the Sling 4 aircraft were on converging tracks, with the Sling 4 aircraft still in a climb. It was estimated that there was a risk of collision between them as the FI on the helicopter was not aware of the Sling 4 aircraft. The Sling 4 test pilot was aware of the helicopter but lost sight of it. No traffic information was shared with the FI on-board the R44 helicopter.
- 2.2.4. The investigation established that the ATCO approved an early left turn after departure from Runway 35 with the helicopter on the left circuit active for Runway 35, but did not warn the FI on the helicopter about the Sling 4 aircraft turning left early after take-off. The Sling 4 test pilot lost sight of the helicopter and cut in front of it during the climb; this resulted in reduced aerodrome separation.

3. CONCLUSION

3.1. General

From the available evidence, the following findings, causes and contributing factors were made with respect to this serious 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 serious incident. The findings are significant steps in this serious 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 serious 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 serious incident occurring, or would have mitigated the severity of the consequences of the serious 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

3.2.1. The flight instructor (FI) on the R44 helicopter was initially issued a Commercial Private Licence (CPL) on 15 October 2018. The FI completed his revalidation on 3 November 2013 and was issued a licence with an expiry date of 31 October 2024. The FI was issued a Class 1 aviation medical certificate on 29 January 2024 with an expiry date of 31 January 2025. The FI was required to wear corrective lenses for defective distant vision (VDL) whilst flying, according to his aviation medical certificate.

3.2.2. The student pilot (SP) on the R44 helicopter was initially issued a Student Pilot Licence (SPL) on 12 February 2024 with an expiry date of 11 February 2025. The SP was issued a Class 1 aviation medical certificate on 20 September 2023 with an expiry date of 30 September 2025. The SP was required to wear corrective lenses for VDL whilst flying, according to his aviation medical certificate.

3.2.3 The Sling 4 test pilot was initially issued a CPL on 7 June 2010. The test pilot conducted his revalidation on 30 August 2023 with an expiry date of 31 August 2024. The test pilot was issued a Class 1 aviation medical certificate on 15 July 2024 with an expiry date of 31 July 2025. The test pilot was required to wear corrective lenses for VDL whilst flying, according to his aviation medical certificate.

The ATCO

3.2.4 The ATCO was initially issued an Air Traffic Service Licence on 28 November 2016. An Aerodrome Control Rating was issued on 6 September 2022. The ATCO completed her proficiency check for Aerodrome Control at FAGC on 5 April 2024 with an expiry date of 4 April 2026.

The R44 Raven II Helicopter

- 3.2.5 The helicopter was issued a Certificate of Airworthiness (C of A) on 10 June 2021 with an expiry date of 30 June 2025. The helicopter was issued a Certificate of Registration (C of R) on 18 August 2023. The helicopter was issued a Certificate of Release to Service (CRS) on 9 November 2023 with an expiry date of 9 November 2024 or at 1 666.69 airframe hours, whichever occurs first.
- 3.2.6 The last mandatory periodic inspection (MPI) of the helicopter was certified on 9 November 2023 at 1 566.69 airframe hours. The helicopter had accumulated an additional 41.55 airframe hours in operation since the last MPI.
- 3.2.7 The flight was conducted under the provisions of Part 141 of the CAR 2011 as amended.
- 3.2.8 The aircraft was maintained by an AMO that was licensed by the Regulator.

The Sling 4 Aircraft

- 3.2.9 The Sling 4 aircraft test flight was conducted under the provisions of Part 148 of the CAR 2011 as amended.
- 3.2.10 The Sling 4 aircraft was new and had accumulated 4.5 hours.
- 3.2.11 Fine weather conditions prevailed at the time of the serious incident. Weather had no bearing to this serious incident.

3.3 Probable Cause/s

- 3.3.1 The ATCO permitted the Sling 4 test pilot to conduct an early left turn after take-off whilst the R44 helicopter was in the left circuit for Runway 35 and did not warn the FI (on the helicopter) of the proximity of the Sling 4 aircraft. The test pilot lost sight of the R44 helicopter and cut in front of it (helicopter), which resulted in reduced aerodrome separation.

3.4 Contributory Factor/s

- 3.4.1 Poor decision-making and incomplete traffic information by the ATCO. (The test pilot on-board a Sling 4 aircraft was informed about the R44 helicopter, but the FI on-board the R44 helicopter was not informed about the Sling 4 aircraft).

3.4.2 The test pilot on-board the Sling 4 aircraft lost sight of the R44 helicopter (ZT-RFJ).

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 Message

4.2.1 ATCO are advised to avoid early turns when there are mixed or conflicting traffic and must remember to always give traffic information to all affected aircraft

5 APPENDICES

5.1 Appendix A: ATC transcript.

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

Appendix A:

	From	To	Message
14:19:04	ZT-RFJ	TWR	RFJ ready for more flight
14:19:10	TWR	ZT-RFJ	RFJ RWY35 circuits surface wind 080 degrees 5 kts lift pilots discretion report left downwind 6000 ft or below
14:19:17	ZT-RFJ	TWR	Lift pilots discretion left downwind next RFJ below 6000
14:19:22	ZU-TEX	TWR	TWR,TEX ready for take-off
14:19:24	TWR	ZU-TEX	TEX request your aircraft type Sir
14:19:26	TEX	TWR	It's a Sling 4 high wing SLH4
14:19:32	TWR	TEX	Thank you Sir RWY 35 surface wind light and variable, cleared to take-off left hand turn climb to 6500 feet report zone out bound to the south
14:19:39	TEX	TWR	Thank you cleared take-off left turn out can we have an early left turnout when ready please and 6500 feet out bound TEX
14:19:51	TWR	TEX	TEX early left approved, keep a look out for an R44 on the upwind will be remaining in the left-hand circuit.
14:19:59	TEX	TWR	Great thanks we've got them visual and we'll keep a lookout for him.
14:21:14	RFJ	TEX	Fixed wing dude: you know you going through my circuit hey?
14:21:26	RFJ	TWR	TWR,RFJ
14:21:29	TWR	RFJ	RFJ, TWR go-ahead
14:21:32	TEX	TWR	TEX
14:21:33	RFJ	TWR	Just note that the fixed-wing aircraft just cut right in front of me and I had to dive below him. On my left downwind now.
14:21:39	TEX	TWR	That's me I did get a clearance an early left out. Were you in a right-hand circuit?
14:21:44	RFJ	TEX	Left-hand circuit!
14:21:51	TWR	RFJ	RFJ apologies for that Sir the traffic was advised about you
14:21:57	RFJ	TWR	Note we're left downwind for the taxiway
14:22:01	TWR	RFJ	RFJ,report final taxiway 35 number 1
14:22:04	RFJ	TWR	Final next RFJ
14:22:06	TEX	TWR	TEX is outbound
14:22:08	TWR	TEX	TEX 125.8
14:22:10	TEX	TWR	Thank you 125.8