SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10427								
Classification	Accident		**Date**	21 February 2024		**Time**	1400Z		
Type of Operation	Private (Part 94)								
Location									
Place of Departure	Ingwelala Aerodrome, Mpumalanga Province		Place of Intended Landing	Rhino Park Aerodrome, Gauteng Province					
Place of Occurrence	The right side of Runway 01 at Ingwelala Aerodrome								
GPS Co-ordinates	Latitude	24°09'41.58" S	Longitude	031°23'42.73" E		Elevation	1 108 feet		
Aircraft Information									
Registration	ZU-DKL								
Make; Model; S/N	Urban Air S.R.O., Samba XL (Serial Number: SA XL-10)								
Damage to Aircraft	Substantial			Total Aircraft Hours		657.4			
Pilot-in-command									
Licence Type	National Pilot Licence			Gender	Male		Age	53	
Licence Valid	Yes	Total Hours		61.3	Total Hours on Type		49.0		
Total Hours 90 Days	29.4			Total Flying on Type Past 90 Days	29.4				
People On-board	1 + 1	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0		

What Happened

On Wednesday afternoon, 21 February 2024, a pilot and a passenger took off on a private flight from Ingwelala Aerodrome (FAIW) in Mpumalanga province to Rhino Park Aerodrome in Gauteng province. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot stated that he obtained the weather information from an official aviation weather website and an application (app) on his mobile phone (Easy Weather) before the flight. The forecast predicted fine weather conditions with 3 oktas of cloud. As the duo approached the Blyderiver Canyon, they noticed inclement weather ahead (thunderstorm). They also felt turbulence (up and down draughts) which informed their decision to return to FAIW.

The pilot stated that the aircraft had no rudder control on short final approach for Runway 01; *the right rudder pedal was fully depressed against the firewall*. However, he maintained the runway heading by applying and reducing power, and he landed the aircraft on Runway 01. But as the nose wheel contacted the runway, the aircraft veered off to the right and departed the runway. It impacted a sandbank near the runway edge. As a result, the nose landing gear collapsed, and the propeller struck the ground. The two occupants were not injured.

The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 24º09’41.58” South 031º23’42.73” East, at an elevation of 1 108 feet (ft).

Figure 1: The runway at Ingwelala Aerodrome. (Source: Google Earth)

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

Figure 3: The aft view of the aircraft shows the collapsed nose gear. (Source: Pilot)

Figure 4: The front view of the aircraft shows the damaged propeller blades. (Source: Pilot)

Meteorological Information

The meteorological aerodrome report (METAR) for Hoedspruit Air Force Base (FAHS) on 21 February 2024 at 1400Z was obtained from the South African Weather Service (SAWS) aviation website: www.aviation.weathersa.co.za. Ingwelala Aerodrome is located 22 nautical miles (nm) north-east of FAHS.

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Wind Direction	090º	Wind Speed	5 knots	Visibility	9999 m
Temperature	34ºC	Cloud Cover	3 octas	Cloud Base	5 000ft
Dew Point	19ºC	QNH	1011hPa		

The weather information entered in the table below was obtained from the pilot questionnaire.

Wind Direction	090º	Wind Speed	2 knots	Visibility	9999 m
Temperature	30ºC	Cloud Cover	3 octas	Cloud Base	9 000ft
Dew Point	Unknown	QNH	1011hPa		

Aerodrome

Ingwelala Aerodrome (FAIW) is an unlicensed aerodrome with a single runway. The gravel surface runway is orientated 01/19. The runway is 1 250 metres (m) long and 15m wide. From the photographic evidence provided to the investigator, the clearway next to the runway edge was not adequately maintained; it had a hand-built sandbank to direct rainwater off the runway.

Post-accident Inspection of the Aircraft

The investigator inspected the aircraft after recovery by an aircraft maintenance organisation (AMO). After the inspection of the aircraft system, no evidence was found to confirm that the rudder cable(s) had failed as per the pilot's statement. The rudder system and the elevators were tested by moving the rudder pedals and the control stick. It was found that the aircraft was fitted with dual flight controls. The aircraft's maximum take-off weight is 540 kilograms (kg).

Investigation revealed that the aircraft was involved in an accident on 27 December 2009 in which the nose landing gear strut broke off. The nose gear strut assembly that was fitted to the aircraft at the time of the repairs displayed evidence of being sub-standard and/or of poor workmanship (see Figure 11).

Figure 5(a) and 5(b): The left and right rudder cable connections (rudder side) were found intact.

Figure 6: The left and right rudder cables in the boom area of the aircraft were in place and undamaged.

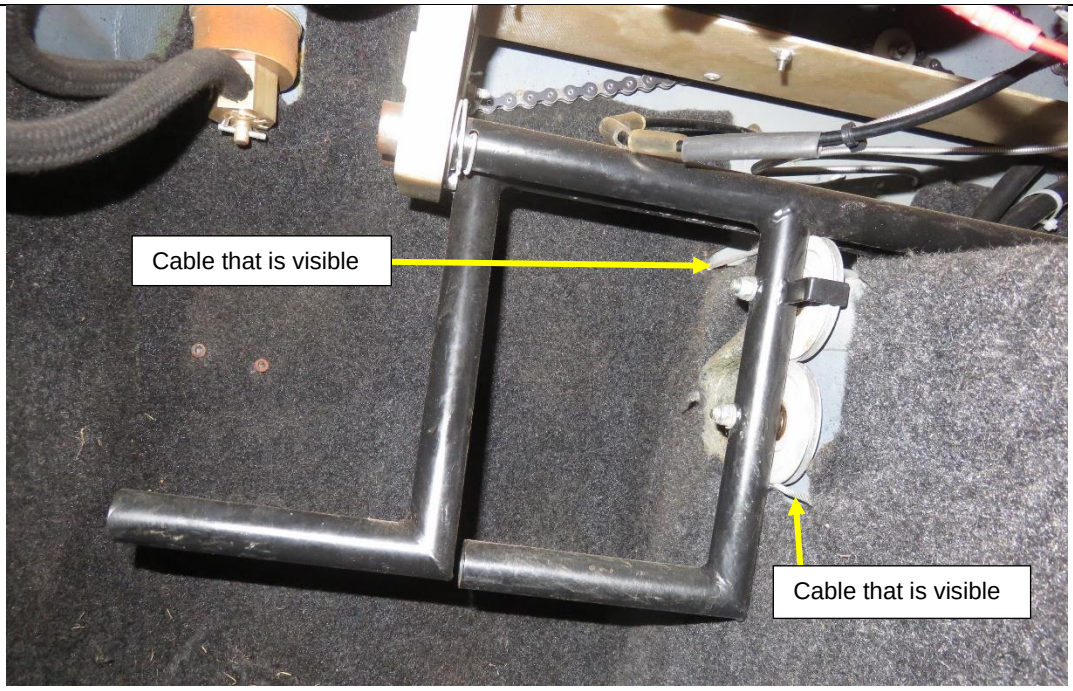

Figure 7: The rudder pedals on the pilot side with the cables visible.

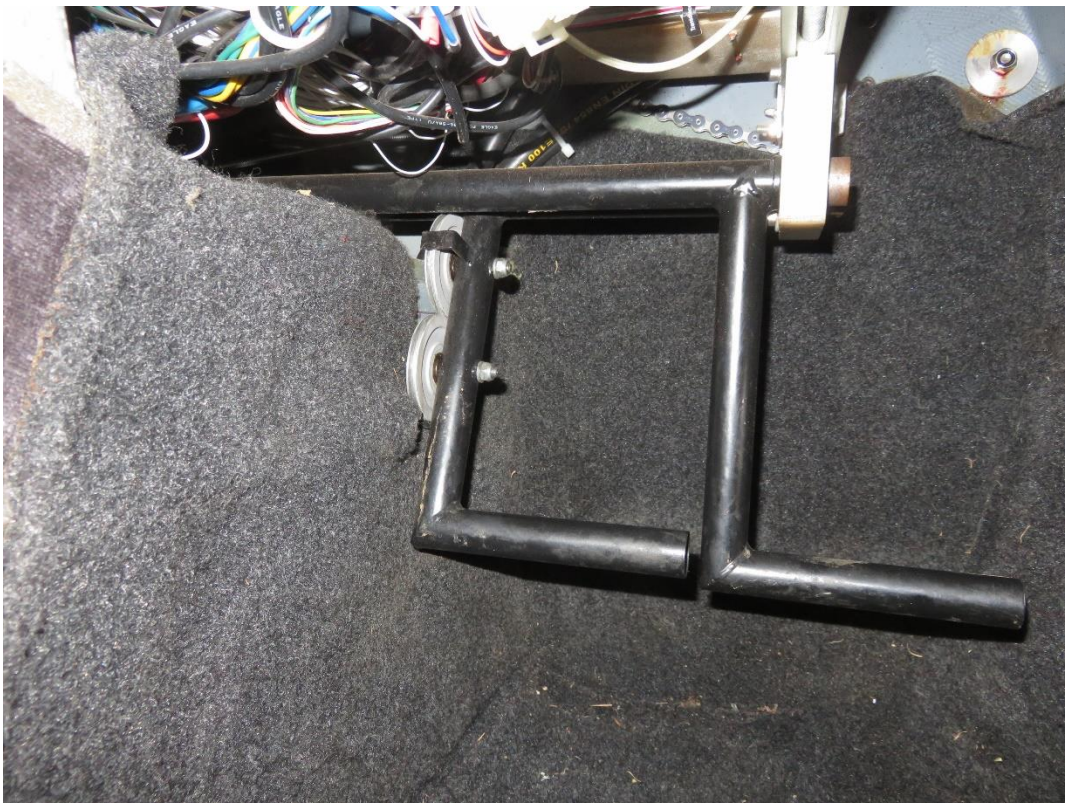

Figure 8: The rudder pedals on the passenger side.

Figure 9: A view of the cockpit with the right seat removed.

Figure 10: The failed nose gear strut.

Figure 11: The nose gear strut bottom section with drill holes.

Findings

1. Personnel Information

1.1 The pilot had a National Pilot Licence (NPL) that was initially issued by the Regulator on 21 January 2024 with an expiry date of 20 January 2025. The pilot had flown a total of 61.3 hours, of which 49.0 hours were on the aircraft type. The pilot had three Non-type Certified Aircraft endorsements on his licence.

1.2 The pilot was issued a Class 4 aviation medical certificate on 16 January 2023 with an expiry date of 31 January 2026.

1.3 The pilot was required to wear corrective lenses for defective distance, intermediate and near vision (VML) whilst flying an aircraft. He was also required to adhere to hypertension protocol.

2. Aircraft Information

2.1 The last maintenance inspection that was conducted on the aircraft before the accident flight was certified on 29 September 2023 at 625.6 airframe hours. The aircraft accrued 31.8 hours since the last maintenance.

2.2 The aircraft had a valid Authority to Fly (ATF) Certificate that was initially issued on 25 July 2019. The latest issued ATF had an expiry date of 31 July 2024. The aircraft was airworthy when it dispatched for the flight.

2.3 The aircraft's Certificate of Registration (C of R) was issued to the present owner on 28 October 2022.

2.4 The aircraft was issued a Certificate of Release to Service (CRS) on 29 September 2023 with an expiry date of 28 September 2024 or at 725.6 airframe hours, whichever occurs first.

2.5 No evidence could be found to support the pilot's statement that the rudder cable had failed during the final approach for Runway 01.

2.6 The aircraft was fitted with a Rotax 912-ULS engine with serial number 5643827.

2.7 The aircraft was fitted with a Woodcomp SR 3000/3 propeller with serial number RT503.

2.8 The aircraft was involved in an accident on 27 December 2009 (AIID reference number CA18/2/3/8729). The aircraft ballooned during landing at Ceres Aerodrome, which led to the

propeller strikes on the ground. The propeller was destroyed, the nose wheel fork assembly broke off, and the engine cowlings and lower fuselage sustained substantial damage.

2.9 The aircraft had accrued 292.9 hours since the repairs in 2010 after the accident.

Probable Cause(s)

The pilot lost directional control of the aircraft during landing as he was unable to centre the nose gear prior to the aircraft contacting the runway; the aircraft veered off to the right which led to the collapse of the nose landing gear.

Contributing Factor(s)

(i) The pilot stated that the passenger could have inadvertently depressed the rudder pedal(s) during the final approach phase of the flight. The passenger was a non-aviator/nervous flyer.

(ii) The clearway next to the runway surface edge was poorly maintained.

Safety Message

In the interest of aviation safety, pilots should remove dual flight controls before undertaking a flight when accompanied by passengers who will be seated on the right front seat of the aircraft as they are likely to intervene with the flight controls (especially nervous flyer) during the flight.

Safety Recommendation

It is recommended that the landowner of the Ingwelala Aerodrome properly maintains the runway and clearway areas to prevent a recurrence of this accident.

About this Report

The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation, and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desktop inquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Purpose

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not apportion blame or liability.

Disclaimer

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