

FORM -PRL-100



REPUBLIC OF NAMIBIA
MINISTRY OF WORKS AND TRANSPORT

**Directorate of Aircraft Accident and Incident
Investigations**

Accident Reference: ACCID/083022/01-03

**Aircraft Accident Investigation Preliminary
Report**

RELEASE DATE:



Aircraft Accident Preliminary Report

DESCRIPTION OF OCCURRENCE: Cessna210N crashed into the river

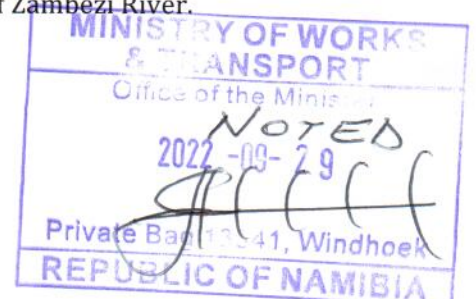
Reference number : ACCID 083022-01-03
Name of the owner : Nature Wings
Operator : Scenic Air
Type of operation : Charter
Manufacturer : Cessna Aircraft Company
Model : C210N
Nationality : Namibian
Registration marking : V5-LMK
Place : Impalila Island Airstrip (FYII), Zambezi
Region, Namibia
Date : 30 August 2022
Time : 10H23 UTC



Figure 1: The Cessna 210N aircraft V5-LMK accident aircraft (source: Operator)

On Tuesday afternoon, 30 August 2022 at 10:22 UTC, a pilot and four passengers on-board a Cessna 210N aircraft with registration V5-LMK took off on a charter flight from Impalila Island airstrip, on runway 10 for a flight to Rundu for refueling and proceed to Windhoek Eros Airport as a final destination.

After take-off the aircraft made a left turn and crashed on the bank of Zambezi River.



Occurrence Details

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Introduction

The information contained in this Preliminary Accident Report is published to inform the aviation industry and the public of the general circumstances of the accident that occurred on the 30 August 2022.

The purpose of the Directorate of Aircraft Accidents and Incident investigations (DAI) is to promote aviation safety through the conduct of independent investigations without prejudice to any judicial or administrative authority consistent with provisions of Namibian Civil Aviation Act, Act 6, of 2016. Which is in-line with ICAO's Annex 13 paragraph 7.1 and 7.2.

The Directorate of Aircraft Accident and Incident Investigations (DAI) as the authority in charge of the investigations will work in close corporation with state of aircraft and engine manufacture when needed.

Note: The information provided herein is of a preliminary nature. Readers are cautioned that there is the possibility that new information may become available that alters this Preliminary accident Report prior to the availability of the Final accident Report. Any person who has information concerning this accident should contact the Directorate of Aircraft Accident and Incident Investigation (DAI) on daai@mwt.gov.na

Investigation process:

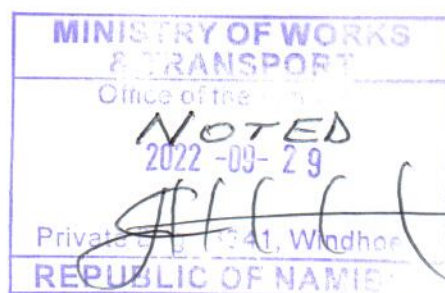
The Directorate of Aircraft Accident and Incident Investigation (DAI) was informed of the accident on the 30 August 2022 at 11:15 UTC of a Cessna 210N that crashed in Zambezi River. DAI appointed an Investigator in charge and a Co-investigator that will lead the investigation and issue the final report. The DAI reports are made available to the public at www.mwt.gov.na



1. FACTUAL INFORMATION

1.1 History of the flight

- 1.1.1 On Tuesday morning, 30 August 2022, a Cessna C210 aircraft with registration V5-LMK departed from Windhoek Eros (FYWE) to Impalila Island (FYII) at time 05H55 UTC with only the pilot, seven hours and 30 minutes of fuel on board. The intention was to pick 4 passengers up from FYII and bring them back to FYWE via Rundu (FYRU). FYRU was only a fuel stop. The flight was uneventful and the aircraft crossed into Gaborone Flight Information Region (FIR) at time 07H38 UTC. The pilot made contact with Kasane (FBKE) Air Traffic Control (ATC) when she entered the Terminal Area (TMA) of FBKE at time 09H01 UTC. The FBKE ATC guided the pilot through the TMA and the aircraft landed on the FYII airstrip at 09H43 UTC.
- 1.1.2 At the airstrip the passengers were already waiting and also observed the aircraft landing. The driver who dropped the passengers, instructed one of the passengers to make a video recording while the plane was approaching and also of the landing. The aircraft landed in an easterly direction on Runway (RWY) 10. According to the driver who witnessed the landing, he recalled that it was quite hard as the aircraft ballooned and finally came to a stop at the eastern side of the RWY (Threshold 28). The aircraft proceeded to the holding area abeam Threshold(THR) 28. The driver then drove the passengers to the plane for boarding.
- 1.1.3 The pilot, assisted by the driver started loading the baggage. According to him the pilot realized that she would not be able to carry all the bags as it was too many and too heavy. She then decided to offload 2 bags. The pilot then called the operator to make arrangements for the lodge to pick the two bags up.
- 1.1.4 The pilot requested the driver to move the vehicle closer so that she can use it as a ladder to inspect the fuel tanks and to do other preflight checks. She then informed the driver that they are good to go. Before the driver moved his vehicle out of the way, he informed the pilot that he will wait until they are safely airborne. One of the passengers was seated next to the pilot on the right front seat, the father, whilst two passengers were seated in the second row, the mother was seated behind the father. The last passenger was seated in the last row on the left. All passengers had their seat belts fastened. The pilot then started the aircraft and backtracked from THR 28 to THR 10 to depart RWY 10 in an easterly direction.



1.1.5 The pilot contacted Kasane ATC and informed them that she was lined up and will be departing soon from RWY 10 to FYRU. Kasane ATC acknowledged and requested her flight level, fuel and the number of people on board, which the pilot provided. The pilot was then instructed to report when she was airborne. The pilot then commenced with the take-off. After rolling for some distance, she commenced with the lift-off and then made contact with Kasane ATC again and informed them that she is airborne. Kasane ATC then wanted to know whether she will be routing via "Caprivi Strip", on which she answered "yes". Kasane ATC then instructed the pilot to broadcast on the unmanned frequency 124, 8 MHz, but the pilot never acknowledged the instruction (Kasane ATC made several calls thereafter to the aircraft, but there was no reply). After take-off, the pilot made a left turn. The aircraft inclined sharply and veered off to the left; thereafter it rolled further to the left. According to the eye witness (driver), the left wing was pointing 90 degrees downwards and struck a tree next to the river, thereafter the aircraft crashed into the river close to the river bank, where the right wing impacted the water. First followed by the nose section of the aircraft. The impact caused the engine and propeller to break free from fuselage. The aircraft came to a stop in an upright position facing south. With the tail section protruding out of the water.

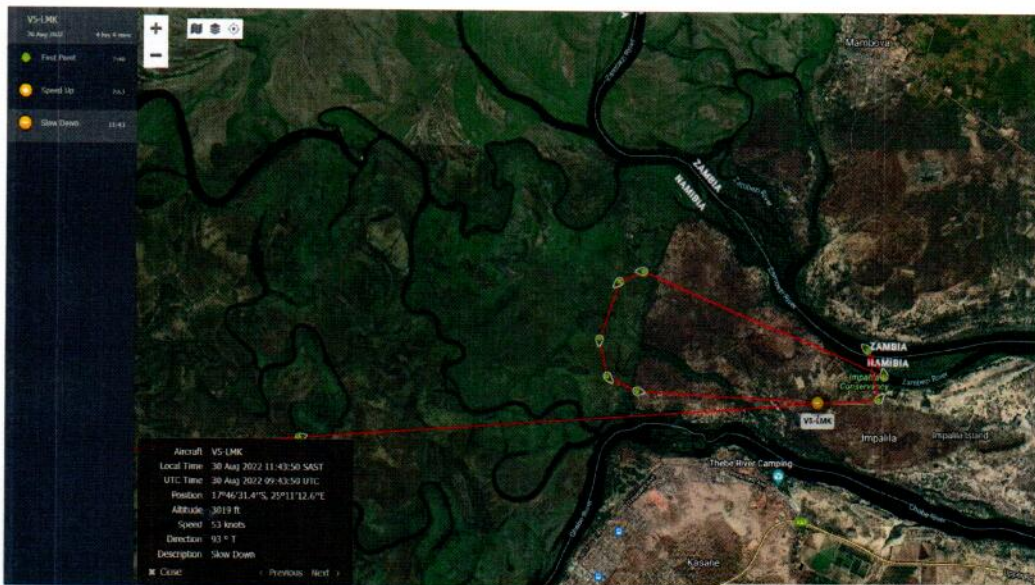


Figure 2: Picture showing the aircraft approach and landing at Impalila Island airstrip (sources: spider track fitted on the aircraft by Skycore)

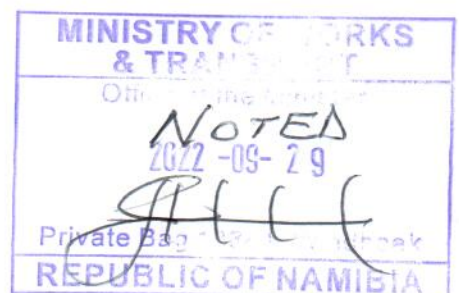




Figure 3: Picture showing the take-off from Impalila Island and the data pertaining to the take-off maneuver performed by the aircraft before it crashed.

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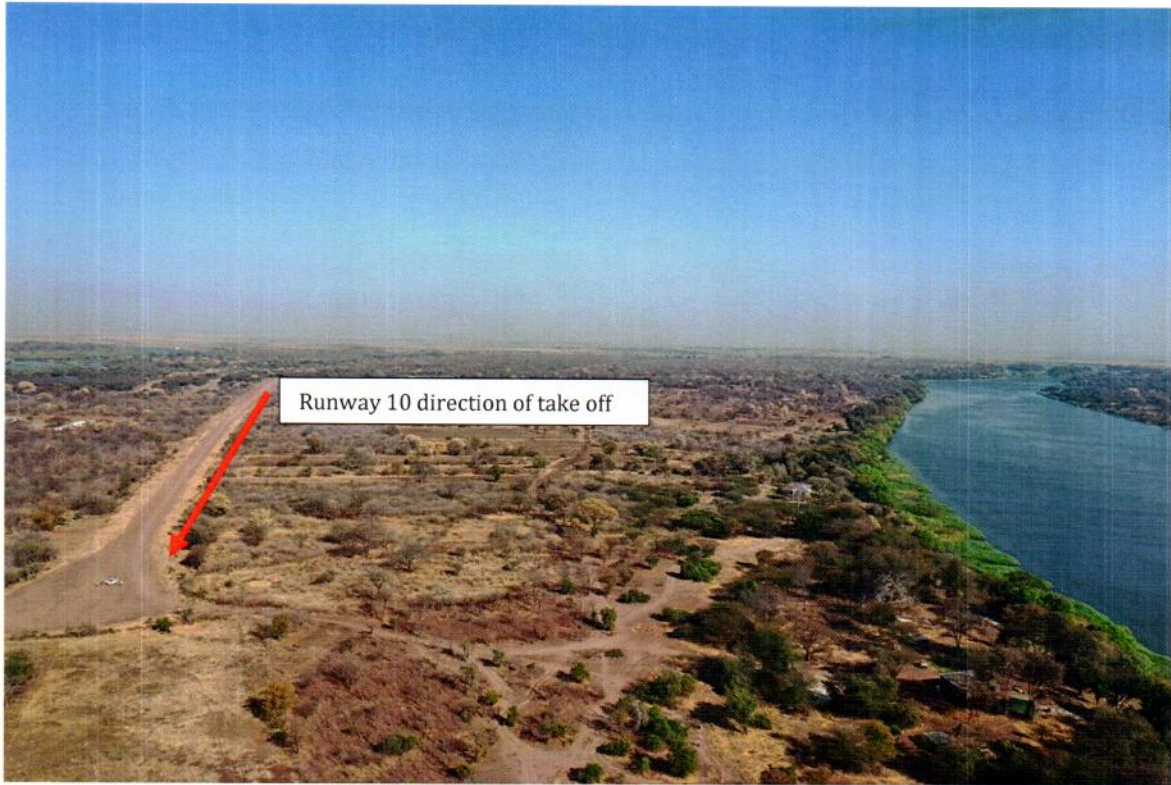


Figure 2,3: Pictures showing the Direction of takeoff and where the aircraft crashed.

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1.1.6 The driver and a lady that was with him rushed to the scene, they also called the navy, the clinic and the Police of the Island to assist. They found another eyewitness, who also saw the crash, running to scene. On arrival two voices calling for help could still be heard. The driver was trying to get into the plane, but it proved to be very difficult as leaking fuel and vegetation was everywhere. Sadly, all on board was fatally injured.

1.1.7 The Directorate of Aircraft Accident and Incident Investigations was informed and a full Investigation was launched.

Note: The information in the history of flight was sourced from the eye witness accounts, Air Traffic Control Services of Namibia, Botswana and the spider track installed in the aircraft. The information recorded by the spider track will be analyzed in the final report.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	1	0	4	0
Serious	0	0	0	0
Minor	0	0	0	0
None	0	0	0	0

1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed.



Figure 4: Picture showing how the aircraft was damaged (picture was taken after recovery)



1.4 Other Damage

There was no damage to the surrounding vegetation.

1.5 Personnel Information

1.5.1 Pilot-in-in command

Nationality		South African			
Licence No	0275011456	Gender	Female	Age	21
Licence valid		Yes	Type Endorsed	Yes	
Ratings		C172,P28A,P28R,SLG2,C210			
Medical Expiry Date		30/ 09/ 2022			
Restrictions		None			
Previous Accidents		Unknown			

The pilot was a holder of a valid South African Commercial Pilot License with a Namibian Validation Certificate issued according to the Namibian Civil Aviation Regulation (2001) part 61.01.10 valid from 03 August 2022 until 30 September 2022.

Flying Experience:

Total Hours	310.2
Total Past 90 Days	80.6
Total on Type Past 90 Days	80.6
Total on Type	82.1

*as at 30/08/2022

1.6 Aircraft Information

1.6.1 Aircraft description

The Cessna 210N is a six-seater high performance aircraft. The Cessna 210N family of Aircraft comprises all metal, unpressurised, piston powered single engine with high Mounted wings with a retractable landing gear.



Airframe:

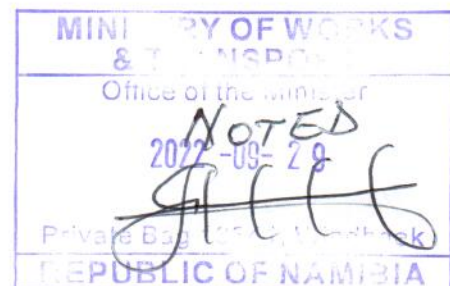
Type	Cessna 210N	
Serial No.	21064656	
Manufacture	Cessna	
Year of Manufacture	1982	
Total Airframe Hours (At time of Accident)	12055.2	
Last MPI (Date & Hours)	14 July 2022, airframe hours 12017.8	
Hours since Last MPI	32.3 hours	
C of A (Issue Date)	17 February 2022	
C of R (Issue Date) Present owner	15 July 2005	
Type of fuel used	Avgas	
Operating Categories	Standard A,B,C,D,E,F	

Engine:

Type	Continental I0520L13B
Serial No.	1031201
Hours since New	1148.6
Hours since Overhaul	N/A

Propeller

Type	Hartzell
Part no	HC-J3YF-1RF/F8068-2
S/N	L11331,L11339,L11340
Hours since new	1232.6
Hours since overhaul	137.3



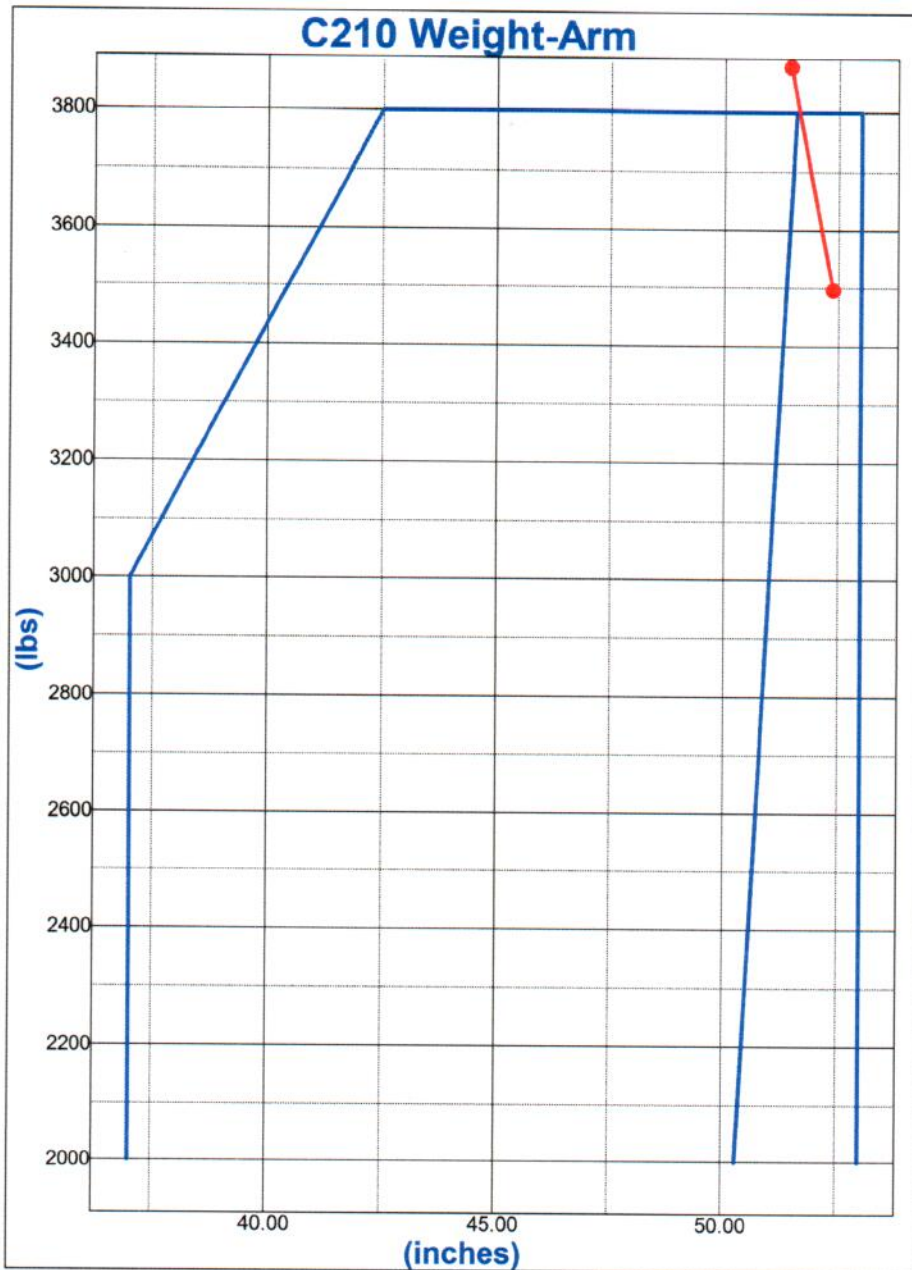
1.6.2 Weight and Balance

Flight Plan Impalila to Rundu

AIRCRAFT LOADING					
Item	Quantity	Unit Weight (lbs)	Total Weight (lbs)	Arm (inches)	Moment (lbs-inches/1000)
Aircraft	1	2420	2420	43.0	104
Fuel	240 (litres)	1.6	380	42.9	16.3
Front L	1	187	187	37	6.9
Front R	1	206	206	37	7.6
Middle L	1	165	165	71	11.7
Middle R	1	164	164	71	11.6
Back L	1	153	153	101	15.5
Back R	1	0	0	101	0
Bag w Well	1	88	88	117	10.3
Main Hold	1	97	97	138	13.4
Accessories	1	15	15	138	2.1
TOTAL			3876	51.5	199
Total - no fuel			3495	52.4	183.1

FUEL CALCULATIONS		
Unusable:	3.8 (litres)	
Taxi:	5 (litres)	
Flying:		
Trip:	02 hours 12 min	110 (litres)
Approach and Landing:	00 hours 06 min	5.0 (litres)
Contingency (5%):	00 hours 07 min	5.7 (litres)
Alternate:	00 hours 19 min	16.2 (litres)
Final Reserve:	00 hours 45 min	37.8 (litres)
Extra:	01 hours 07 min	56.5 (litres)
TOTAL USABLE:	04 hours 36 min	236 (litres)





Note: The weight of the pilot and passengers was obtained during the Post-Mortem examination.
The weight of the baggage was done after all the bags were dried properly after been recovered from the wreckage in the river.

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1.7 Meteorological Information

1.7.1 The weather information report was obtained from Kasane Air Traffic Services.

Wind direction	100°	Wind speed	08kts	Visibility	Good
Temperature	31° C	Cloud cover	Clear	Cloud base	N/A
Dew point	-01°C				

1.8 Aids to Navigation

The Airstrip where the aircraft took off from is not equipped with any Navigation aids nor was It required by any Regulations.

1.9 Communication

The aircraft was equipped with standard communication equipment as approved for the type by the Regulator (NCAA). The aircraft communication system was serviceable prior to the accident the aircraft was in communication with Kasane ATC on 127.2 MHz.

1.10 Aerodrome Information

1.10.1 The aerodrome utilized for the accident flight is a single gravel runway. The runway designators are 10/28 located on Impalila Island.

1.10.2 The runway length is 1300 meters and 30 meters wide, the runway is hard gravel with an even surface. There is a windsock located in the middle, South of the runway.

Aerodrome Location	Impalila Island
Aerodrome GPS coordinates	17°46'30.9" S 25°11'36.9" E
Aerodrome Elevation	3058ft
Runway Designators	10/28
Runway Dimensions	1300×30
Runway used	10
Runway surface	Gravel
Aids to Navigation	None



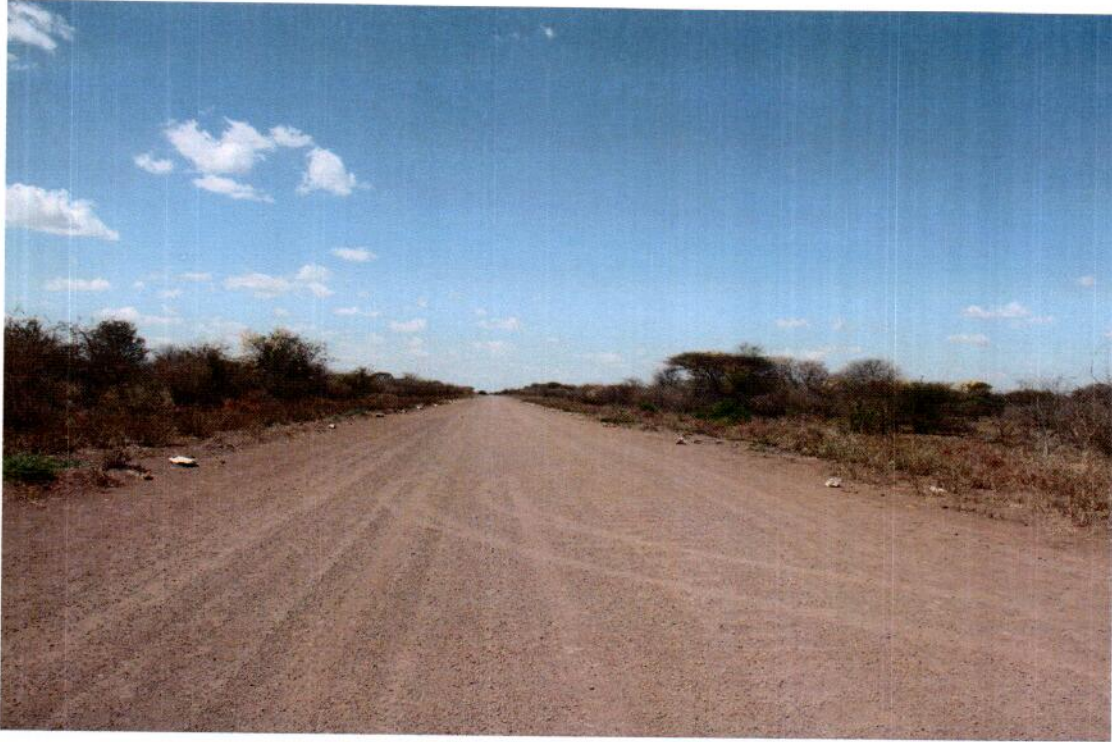


Figure 5: Picture showing the Impalila Island runway facing into the Easterly direction.

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 in accordance with the regulations.

1.12 Wreckage and Impact Information

- 1.12.1 After take-off from runway 10, the aircraft made a left turn, thereafter the left wing struck the tree and it crashed a few seconds later into the bank of Zambezi River. The right-wing tip fuel tank was found at the beginning at the first point of impact. The engine was found under water in the impact trail, about 15 meters away from the main wreckage. The main wreckage was found around 40 meters away from the impact point facing into a southerly direction. The nose section was totally destroyed and the instrument panel was just attached to the fuselage by cables. The main aircraft fuselage was destroyed; the tail sections broke and bend towards the right side of the aircraft. The fuel and other oil and lubricants had leaked away into the river.

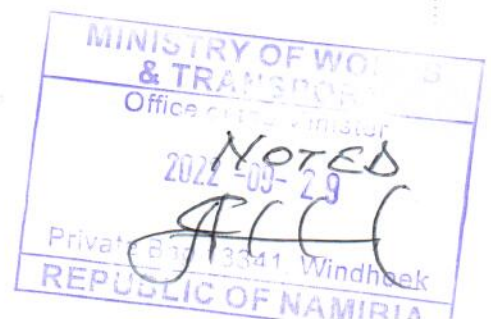
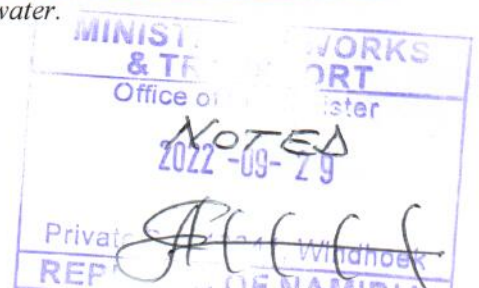




Figure 8: Picture showing the impact sequence in the water



Figure 9: Picture showing the aircraft wreckage as it was found in the water.



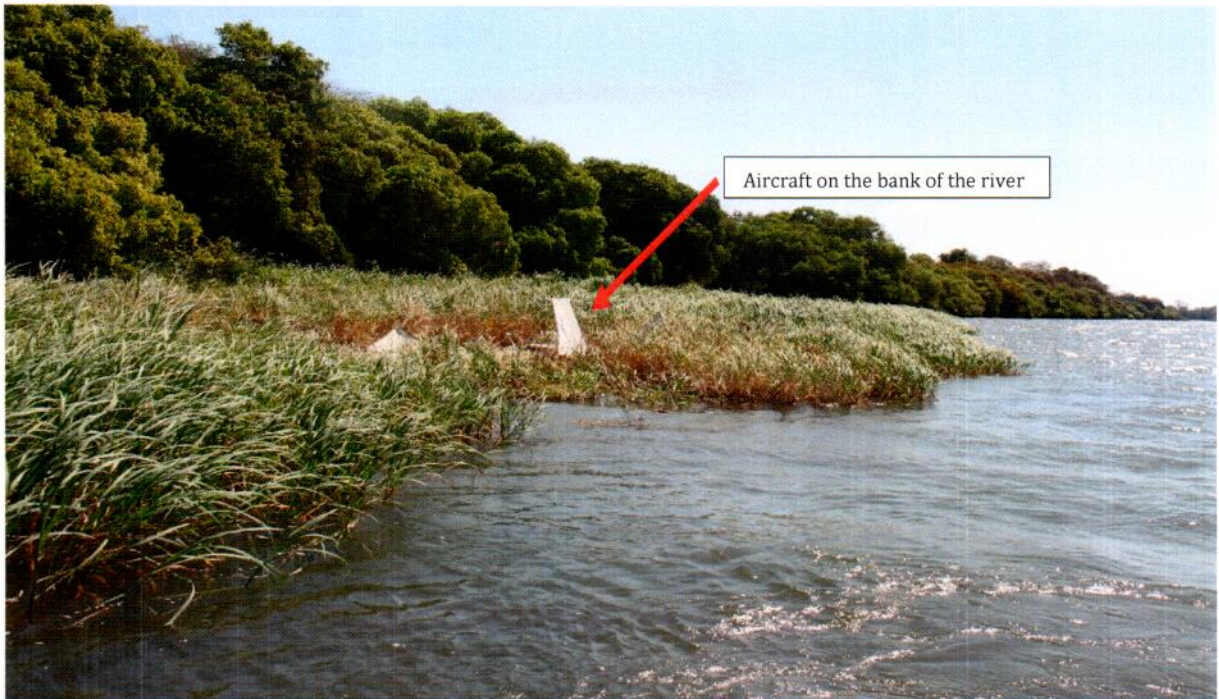


Figure 10: Picture showing where the aircraft ended up on the river bank



Figure 11: Picture showing extend of damage to the aircraft.



1.13 Medical and Pathological information

1.13.1 This information will be made available in the final report.

1.14 Fire

1.14.1 There was no evidence of fire in flight or after the impact.

1.15 Survival Aspects

1.15.1 The accident was not survivable because the impact forces exceeded the human body tolerance and the water level made it even worse. More details will be discussed in the final report.

1.16 Tests and Research

1.16.1 An engine tear down was done in the presence of two DAAll investigators on Tuesday the 20th of September 2022 at a facility at Wonderboom Airport in South Africa. No evidence was found that the engine was not operational. A full report on the engine is expected from the facility soon. The full report will be discussed in the final report.

1.17 Organizational and Management Information

1.17.1 This was a non-Scheduled flight conducted in accordance with the Civil Aviation Act of 2016 (Act No 6 of 2016) and under the provision of Part 135 of the CAR of 2001 as amended. The operator was issued an Air Operating Certificate (AOC) on 17 May 2022 with an expiry date of 16 May 2023.

1.17.2 The last Maintenance inspection that was carried out on the aircraft was the Mandatory Periodic Inspection. The inspection was certified on the 14th of July 2022 at 12017.8 airframe hours. The aircraft had flown 37.4 hours since the last inspection was carried out.

1.18 Additional Information

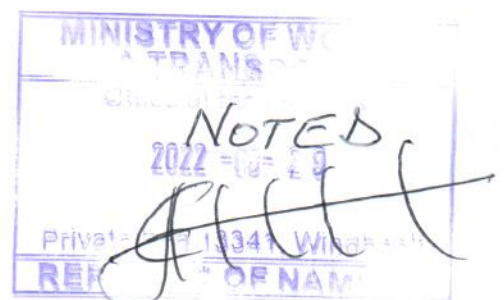
1.18.1 To be discussed in the final report

1.19 Useful or Effective Investigation Techniques.

1.19.1 To be discussed in the final report.

2. Analysis

2.1 To be discussed in the final report



3. Conclusions

3.1 Findings

Although the investigation is on-going, the following provisional findings were made:

The pilot

- 3.1.1 The pilot had a valid Commercial Pilot Licence (CPL). According to the logbook the pilot had flown a total of 310.2 hours, of which 82.1 hours were on the aircraft type at the time of accident.
- 3.1.2 The pilot had a class 1 aviation medical certificate that was issued on 02 September 2021 with an expiry date of 30 September 2022.
- 3.1.2 The pilot was fatally injured during the accident.

The aircraft

- 3.1.3 The aircraft was issued a Certificate of Airworthiness (CoA) on 17 February 2022 with an expiry date of 16 February 2023. The CoA was valid at the time of accident.
- 3.1.4 The last maintenance inspection carried out on the aircraft prior to the accident was certified on 14 July 2022 at 12017.8 airframe hours.

Air Operating Certificate (AOC)

- 3.1.5 The operator was in possession of an AOC that was issued by the Regulator on 17 May 2022 with an expiry date 16 May 2023.

Passengers

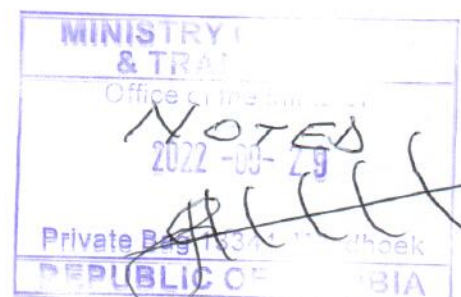
- 3.1.6 The four passengers were fatally injured in the accident.

3.2 On-going investigation

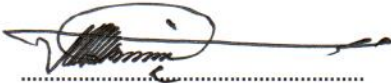
- 3.2.1 The DAAll investigation is on-going and will include all other aspects of this accident which may or may not have safety implications.

4. Safety Recommendations

- 4.1 None



Compiled by:



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Thomas Hipondoka Herman
Investigator-in-charge
DAAII

Date: 26 September 2022



.....
Ben C. A. Engelbrecht
Co-Investigator
DAAII

Date: 26 September 2022

Released by:



.....
Hon John Mutorwa, MP
MINISTER: MINISTRY OF WORKS AND TRANSPORT

Date: 29.9.2022

