

REPUBLIC OF KENYA



**MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT AND PUBLIC WORKS**

STATE DEPARTMENT FOR TRANSPORT

AIRCRAFT ACCIDENT INVESTIGATION DEPARTMENT

PRELIMINARY ACCIDENT REPORT

**PRELIMINARY INVESTIGATION REPORT OF AN OCCURRENCE
INVOLVING AN AEROANDINA MXP-1000 TAYRONA MICROLITE,
REGISTRATION 5Y-VBB ON 09 DECEMBER 2020 ALONG
FOREST ROAD IN ISIOLO**

AIRCRAFT ACCIDENT INVESTIGATION

OPERATOR	:	Sun Lodges Ltd
AIRCRAFT TYPE	:	MXP-1000 Tayrona Microlite
MANUFACTURER	:	AeroAndina S.A.
YEAR OF MANUFACTURE	:	2006
AIRCRAFT REGISTRATION	:	5Y-VBB
AIRCRAFT SERIAL NUMBER	:	AA-06-90-023
DATE OF REGISTRATION	:	09 April 2014
NUMBER AND TYPE OF ENGINE	:	One, Rotax 912-ULS
DATE OF OCCURRENCE	:	09 December 2020
LAST POINT OF DEPARTURE	:	Isiolo Airport
POINT OF INTENDED LANDING	:	Lewa Downs Airstrip
TIME OF OCCURRENCE	:	1005 (1305)
LOCATION OF OCCURRENCE	:	Along forest road in Isiolo
TYPE OF FLIGHT	:	Private (Recreational)
NUMBER OF PERSONS ON BOARD	:	02
INJURIES	:	None
NATURE OF DAMAGE	:	Substantial
CLASS OF OCCURRENCE	:	Accident
PILOT IN COMMAND	:	PPL holder
PIC FLYING EXPERIENCE	:	1,243.2 hours

All times given in this report is Coordinated Universal time (UTC), with East African local time in parenthesis

OBJECTIVE

This report contains information which has been determined up to the time of publication. The information in this report is published to inform the aviation industry and the public of the general circumstances of the accident.

This investigation has been carried out in accordance with *The Kenya Civil Aviation (Aircraft Accident and Incident Investigation) Regulations, 2018 and Annex 13 to the ICAO Convention on International Civil Aviation*.

The sole objective of the investigation of an accident or incident under these Regulations shall be the prevention of accidents and incidents. It shall not be the purpose of such an investigation to apportion blame or liability.

INVESTIGATION PROCESS

The occurrence involved Aero Andina MXP-1000 Tayrona aircraft registration 5Y-VBB, and was notified to the Aircraft Accident Investigation Department (AAID), State Department for Transport (SDT), Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works through a phone call by the pilot.

A team of AAID investigators were dispatched to the site on 11 December 2020 for initial onsite investigation and witness interviews.

After the initial on-site investigation phase, the occurrence was classified as an “accident” owing to the substantial damage to the Aircraft.

In accordance with ICAO best practices, AAID notified aircraft accident investigation authority of the state of aircraft manufacture (Columbia’s Grupo Investigación de Accidentes Unidad Administrativa Especial de Aeronáutica Civil) and aircraft accident investigation authority of the state of engine manufacture (Austria’s Civil Aviation Safety Investigation Authority) respectively.

TABLE OF CONTENTS

SYNOPSIS.....	7
1. FACTUAL INFORMATION.....	10
1.1. History of Flight.....	10
1.2. Injuries to persons	11
1.3. Damage to Aircraft.....	12
1.4. Other damage	12
1.5. Personnel Information.....	13
1.5.1 The Pilot.....	13
1.6. Aircraft Information	13
1.6.2 Maintenance records	14
1.6.3 Mass and Balance	14
1.7. Meteorological Information	15
1.8. Aids to Navigation	15
1.9. Communications	15
1.10. Aerodrome Information.....	15
1.11. Flight Recorders	16
1.12. Wreckage and Impact Information.....	16
1.13. Medical and Pathological Information	16
1.14. Fire.....	16
1.15. Survival Aspects.....	16
1.16. Tests and Research	16
1.17. Organizational and Management Information.....	16

1.18.	Additional Information	16
1.19.	Useful and Effective Investigative Techniques	16
2.	SUMMARY.....	18

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LIST OF ABBREVIATIONS/GLOSSARY OF TERMS

°	-	Degrees
AAID	-	Aircraft Accident Investigation Department
ELT	-	Emergency Locator Beacon
HKIS	-	Isiolo Airport
ICAO	-	International Civil Aviation Organization
KCAA	-	Kenya Civil Aviation Authority
METAR	-	Meteorological Terminal Aviation Routine Weather Report
NM	-	Nautical miles
PPL	-	Private Pilots' License
TSN	-	Time since New
VFR	-	Visual Flight Rules

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

SYNOPSIS

On 9 December 2020 at 1005 (1305) an AeroAndina microlite MXP 1000-Tayrona aircraft registration 5Y-VBB with two on board crashed along forest road in Isiolo shortly after takeoff from Isiolo airport (HKIS).

Investigation into establishing the probable cause(s) of the occurrence is ongoing.

1. FACTUAL INFORMATION

1.1. History of Flight

On 9 December 2020 at 1005 (1305) an AeroAndina microlite MXP 1000-Tayrona aircraft registration 5Y-VBB with two on board crashed along forest road in Isiolo shortly after takeoff from Isiolo airport.

Earlier in the day, the pilot took off from Nanyuki civil airstrip to pick his passenger at the Lewa Downs airstrip. This flight was uneventful. The two then took off from Lewa Downs on a recreational flight to Ewaso Nyiro. On initial climb, the pilot reported that the aircraft experienced abnormal vibrations emanating from the engine area leading him to divert the flight to Isiolo airport. At Isiolo, he performed visual inspection of the aircraft and also removed the engine cowlings to inspect the engine. A ground run was performed and the engine performed as expected. The duo decided to abandon the recreational flight to Ewaso Nyiro and fly back to Lewa Downs airstrip.

After takeoff from Isiolo, the pilot reported that the aircraft experienced further vibrations emanating from the engine area. He also reported to have encountered a loss of engine power despite the engine running at 4,700 rotations per minute (RPM) being 94% of the expected RPM at that phase of flight. At this point, he executed a precautionary landing along forest road, 7.30 NM south west of Isiolo airport. At the point of touchdown on the highway there was truck parked to the left of the road forcing the pilot to steer to right in order to avoid crashing into it. The aircraft veered to the extreme right and ended up in a ditch besides the road with the nose facing 90° to the direction of the road.

There were no injuries and the two on board exited the aircraft unaided.

There was no pre or post impact fire.

The accident site coordinates are 0° 13' 58" N, 037° 31' 54" E, at elevation 5,100 feet above mean sea level.

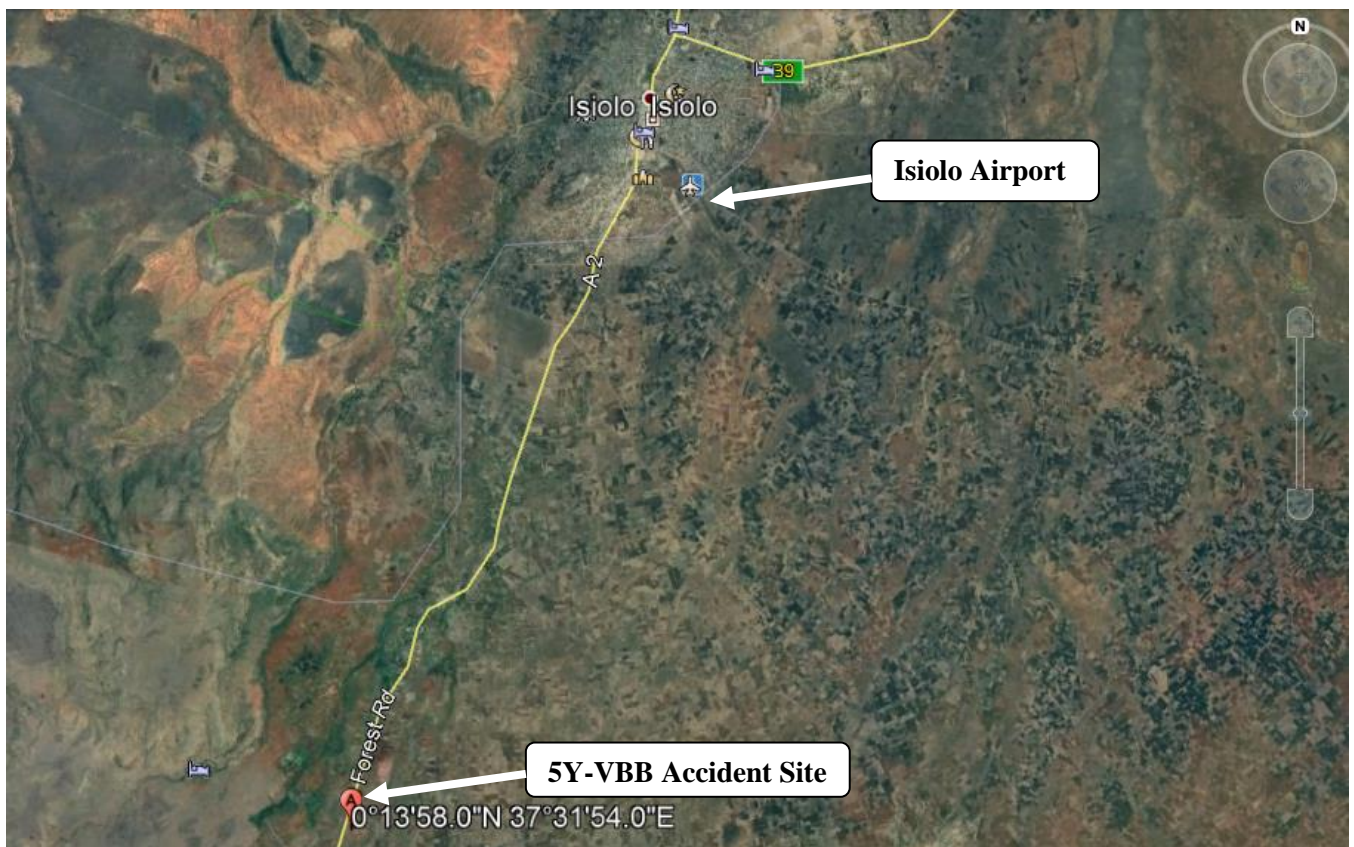


FIGURE No. 1 – Aerial View of Accident site (source: Google earth, with AAID annotations)



FIGURE No. 2 – A photo of tail section of Aircraft 5Y-VBB after recovery from the accident site and

FIGURE No. 3 – A photo depicting extent of damage to the aircraft's fuselage

1.2. Injuries to persons

Injuries	Crew	Passengers	Others	Total
Fatal	0	0	0	0
Serious	0	0	0	0
Minor/None	1	1	0	2

1.3. Damage to Aircraft

The aircraft sustained substantial damage. It came to rest with the nose wheel struck off from its assembly, three of the four composite propeller blades severed at their root and the forth one severed at two thirds along its length. Further damage was to the lower section of the engine thus affecting the thrust line. The main landing gear was bent backwards as it absorbed much of the impact forces while the cockpit area was largely intact. The wings were damaged both at the tip and at the root and wrinkled at various points and the windscreen was shattered. The tail section of the aircraft was largely intact, save for some wrinkling.

Examination of the wreckage revealed no deficiencies prior to the accident.



FIGURE No. 4 – A photo depicting extent of damage to the propeller, engine, cockpit area, wing and fuselage roof

1.4. Other damage

Not applicable

1.5. Personnel Information

1.5.1 The Pilot

At the time of occurrence, the pilot aged 74 held a valid PPL with an expiry date of 08 July 2021. He also held a valid class two medical certificate with no limitations/restrictions with an expiry date of 08 July 2021.

Records showed that prior to the accident, the pilot had flown a total of 1,243.2 hours, all on type, 3.20 in the last 90 days and 1.3 in the last 7 days respectively.

1.6. Aircraft Information

The accident aircraft was an AeroAndina microlite MXP 1000-Tayrona aircraft, serial number AA-06-90-023, manufactured in 2006. It was a high wing, single engine aircraft, with a tricycle landing gear configuration and a steerable nose wheel. It was powered by a Rotax 912-ULS four-cylinder, horizontally opposed, reciprocating engine, serial number 5646148 manufactured in 2006 driving a variable pitch four bladed composite propeller.

A few days to the flight, the pilot fueled the aircraft with 70 litres of gasoline while parked at Nanyuki. On the accident day, he carried with him on board 18 litres of fuel in a container and replenished the fuel tanks with it on landing at Lewa Downs. All quantities of fuel were purchased by the pilot from two local petrol stations at Nanyuki town on diverse dates.

Manufacturer	AeroAndina S.A.
Type	MXP 1000-Tayrona
Year of Manufacture	2006
Aircraft Serial Number	AA-06-90-023
Number and type of engines	1 No., Rotax 912-ULS
Type of fuel used	Gasoline
Certificate of Registration	Kenyan, issued on 09 April 2014
Certificate of Airworthiness	Valid until 21 October 2021
Category	Restricted



AEROANDINA S.A.
Desde 1971

MXP - 1000 TAYRONA

MXP - 1000 TAYRONA



Performance

Design Diving Speed	156 mph	251 km/h
Never Exceed Speed	143 mph	230 km/h
Top speed	124 mph	200 km/h
Cruising speed	118 mph	190 km/h
Stall Speed	35 mph	56 km/h
Stall Speed (no flaps)	40 mph	64 km/h
Rate of Climb	1102 ft/min	5.6 m/s
Range	1050 miles	650 km
Endurance	5:30 hours	5:30 hours
Service Ceiling	12,000 ft+	3,660mt
Take-Off Roll	115 ft	35 m
Landing Roll	197 ft	60 m

Especificaciones

Wing span	10 m
Wing chord	1,23 m
Wing area	12,23 m ²
Length	6,3 m
Cabin Height	1,13 m
Cabin Width	1,16 m
Landing gear	Triciclo
Landing gear width	2 m
Seats	2 side by side
Engine	Rotax 912
Fuel capacity	2 X 12 US gal
Gross weight	640 Kg
Empty weight	290 Kg
Useful load	350 Kg
Load factor	6G / - 3G

FIGURE No. 5— aircraft performance and specifications (source: AeroAndina S.A.)

1.6.2 Maintenance Records

Maintenance was performed by the owner/operator of the aircraft. Last maintenance check was carried out in February 2020 with the 50 hour maintenance check carried out on 03 October 2020. Records showed that the aircraft and its engine had flown a total of 254 hours since new.

Reviewed records indicate that the aircraft was certified, equipped, and maintained in accordance with existing KCAA regulations and approved procedures.

1.6.3 Mass and Balance

Not considered a factor in this accident.

1.7. Meteorological Information

The ongoing investigation to determine the probable cause(s) of the accident will consider many factors, weather of the day included.

1.8. Aids to Navigation

Not considered a factor in this accident.

1.9. Communications

Not considered a factor in this accident.

1.10. Aerodrome Information

The aerodrome considered a factor in this accident.

The accident site location is 7.30 NM, heading 208° from Isiolo airport on a road with a raised gradient and a ditch besides it. Damage to the aircraft was exacerbated on veering off to the ditch where the aircraft came to rest.

1.11. Flight Recorders

The aircraft was not equipped with recorders, nor was it a requirement by KCAA regulations.

1.12. Wreckage and Impact Information

The aircraft veered off to the right of the road with a raised gradient and came to rest in a ditch besides it with its nose facing the road at 90°. All major components were accounted for and there was no breakup of the aircraft prior to impact. The aircraft was largely intact leave for the nose wheel assembly which was detached from its base and three of the four composite propeller blades dislodged at the base. Lower section of the engine and main landing gear was bent backwards as they absorbed much of the impact forces while the cockpit area was largely intact. The wings were damaged both at the tip and at the root. The tail section of the aircraft was largely intact, save for a few wrinkling. There was evidence of fuel saturation on the surrounding vegetation. 20 litres of fuel drained from the tanks after the occurrence was pilfered immediately by onlookers.

Ongoing investigation will explore the possibility of material failures and components malfunctions prior to the accident.

1.13. Medical and Pathological Information

There were no injuries.

There was no evidence to indicate that physiological factors or incapacitation affected the performance of the pilot.

1.14. Fire

There was no inflight or post impact fire.

1.15. Survival Aspects

The accident was survivable. The two on board the aircraft were uninjured and exited the aircraft unaided.

The ELT was activated.

1.16. Tests and Research

Further investigation of material failures and components malfunctions is ongoing.

1.17. Organizational and Management Information

1.17.1. Sun Lodges Ltd

Aircraft Owner/Operator: Sun Lodges Ltd

Address: Nanyuki, Kenya

The aircraft is owned by Sun Lodges and used for private recreational purposes.

1.18. Additional Information

Not applicable.

1.19. Useful and Effective Investigative Techniques

Not applicable.

SUMMARY

The ongoing investigation will analyse, as appropriate, all the information documented, list the findings, cause(s) and/or contributing factors established and state any recommendations made for the purpose of accident prevention.

James Mwangi
Investigator In Charge
19/12/2020