REPUBLIC OF KENYA

MINISTRY OF ROADS AND TRANSPORT

STATE DEPARTMENT FOR TRANSPORT

AIRCRAFT ACCIDENT INVESTIGATION DEPARTMENT

INVESTIGATION REPORT 01/03/2024 - Rev 1

PRELIMINARY INVESTIGATION REPORT ON THE MIDAIR COLLISION ACCIDENT INVOLVING CESSNA C172M AIRCRAFT REGISTRATION 5Y-NNJ AND BOMBARDIER DE HAVILLAND DASH 8 DHC 8-315 AIRCRAFT REGISTRATION 5Y-SLK, ON 05MARCH 2024 AT THE NAIROBI NATIONAL PARK, NAIROBI COUNTY

AIRCRAFT ACCIDENT INVESTIGATION

AIRCRAFT A: CESSNA 172M

OPERATOR	:	Ninety Nines Flying School
AIRCRAFT TYPE	:	Cessna 172 M
MANUFACTURER	:	Textron Aviation Inc.
YEAR OF MANUFACTURE	:	1976
AIRCRAFT REGISTRATION	:	5Y-NNJ
AIRCRAFT SERIAL NUMBER	:	172-65726
DATE OF REGISTRATION	:	02 August 2018
NUMBER AND TYPE OF ENGINE	:	One, Lycoming 0-320-E2D
DATE OF OCCURRENCE	:	05 March 2024
LAST POINT OF DEPARTURE	:	Wilson Airport, Nairobi County
POINT OF INTENDED LANDING	:	Wilson Airport, Nairobi County
TIME OF OCCURRENCE	:	0634 (0934)
LOCATION OF OCCURRENCE	:	Nairobi National Park, right hand side of extended centreline of runway 14 (1º 20’ 32” S, 36º 50’ 01” E)
TYPE OF FLIGHT	:	Training
NUMBER OF PERSONS ON BOARD	:	02
INJURIES	:	02 - Fatal
NATURE OF DAMAGE	:	Destroyed
CLASS OF OCCURRENCE	:	Accident
PILOT IN COMMAND	:	CPL holder
PIC FLYING EXPERIENCE	:	763.2 hours

AIRCRAFT B: BOMBARDIER DE HAVILLAND DASH 8 DHC 8-315

OPERATOR	:	Safarilink Aviation Limited
AIRCRAFT TYPE	:	Bombardier Havilland Dash 8 DHC 8-315
MANUFACTURER	:	Bombardier Inc.
YEAR OF MANUFACTURE	:	28 September 2001
AIRCRAFT REGISTRATION	:	5Y-SLK
AIRCRAFT SERIAL NUMBER	:	574
DATE OF REGISTRATION	:	19 December 2016
NUMBER AND TYPE OF ENGINE	:	Two, Pratt & Whitney Canada Corp, PW 123E
DATE OF OCCURRENCE	:	05 March 2024
LAST POINT OF DEPARTURE	:	Wilson Airport, Nairobi County
POINT OF INTENDED LANDING	:	Ukunda Airport, Kwale County
TIME OF OCCURRENCE	:	0634 (0934)
LOCATION OF OCCURRENCE	:	Nairobi National Park, right hand side of extended centreline of runway 14 (1º 20’ 32” S, 36º 50’ 01” E)
TYPE OF FLIGHT	:	Commercial scheduled - Passenger
NUMBER OF PERSONS ON BOARD	:	44
INJURIES	:	None
NATURE OF DAMAGE	:	Minor
CLASS OF OCCURRENCE	:	Accident
PILOT IN COMMAND	:	ATPL holder
PIC FLYING EXPERIENCE	:	6,827.2 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 ground collision incident.

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 International Civil Aviation Organization (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 toapportion blame or liability.

The information contained in this report is derived from the data collected during the investigation of the midair collision accident.

INVESTIGATION PROCESS

The midair collision accident of 05 March 2024, involved a Cessna C172M aircraft registration 5Y-NNJ and Bombardier De Havilland Dash 8 DHC 8-315 aircraft registration 5Y-SLK at the Nairobi National Park in Nairobi was notified to the Aircraft Accident Investigation Department (AAID), State Department for Transport (SDT) of the Ministry of Roads and Transport through a phone call by Wilson Airport (HKNW) Air Traffic Control.

AAID investigators deployed to the site to conduct initial onsite investigation and witness interviews.

After the initial on-site investigation phase, the occurrence was classified as an "Accident" owing to the two fatal injuries and damage to aircraft registration 5Y-NNJ which was destroyed.

AAID notified the following:

- The Transportation Safety Board of Canada as the aircraft accident investigation authority of the State of Manufacture of Bombardier De Havilland Dash 8 DHC 8-315 aircraft and its engines respectively;
- The National Transportation Safety Board (NTSB) of United States of America as the aircraft accident investigation authority of the State of Manufacture of Cessna 172M and its engine respectively; and
- ICAO.

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LIST OF ABBREVIATIONS/GLOSSARY OF TERMS

AAID	-	Aircraft Accident Investigation Department
AFTN	-	Aeronautical Fixed Telecommunications Network
AMO	-	Approved Maintenance Organization
APTL	-	Airline Transport Pilot's License
ATC	-	Air Traffic Control
CCTV	-	Closed Circuit Television
CPL	-	Commercial Pilots' License
CVR	-	Cockpit Voice Recorder
CVFDR	-	Cockpit Voice Recorder Flight Data Recorder
ELT	-	Emergency Locator Beacon
FDR	-	Flight Data Recorder
HKJK	-	Jomo Kenyatta International Airport
HKNW	-	Wilson airport
HKUK	-	Ukunda airport
ICAO	-	International Civil Aviation Organization
IFR	-	Instrument Flight Rules
KAA	-	Kenya Airports Authority
KCAA	-	Kenya Civil Aviation authority
HKKI	-	Kisumu International Airport
METAR	-	Meteorological Terminal Aviation Routine Weather Report
NM	-	Nautical miles
NOTAM	-	Notice to airmen
PIC	-	Pilot-In-Command
PPL	-	Private Pilots' License
RWY	-	Runway
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 05 March 2024 at about 0634 (0934), a midair collision accident occurred within the Nairobi national park involving a Cessna 172M aircraft registration 5Y-NNJ with two occupants on board and a Bombardier De Havilland Dash 8 DHC 8-315 aircraft registration 5Y-SLK with forty four on board.

The Cessna C172M had taken off from runway 07 (RWY 07) of Wilson airport (HKNW) on a VFR circuits training flight while the Bombardier De Havilland Dash 8 DHC 8-315 had taken off from runway 14 of the same airport on a commercial scheduled passenger flight to Ukunda airport in Kwale County.

The Ninety Nines flying school operated C172M experienced loss of control and impacted terrain. Its occupants suffered fatal injuries. There was no pre or post accident fire and the aircraft was destroyed.

The Bombardier De Havilland Dash 8 DHC 8-315 initiated an air turnback to Wilson airport and landed on runway 32 with a missing section of the right horizontal stabilizer de-icing boot. No injuries were reported and there was no pre or post accident fire or fuel leak.

Visual meteorological conditions prevailed at the time of the accident.

The investigation into identifying the probable cause(s) of the accident is ongoing.

1. FACTUAL INFORMATION

1.1 History of Flight

On 05 March 2024 at about 0634 (0934), a midair collision accident occurred within the Nairobi National Park involving a Ninety Nines Flying School's Cessna 172M aircraft registration 5Y-NNJ anda Safarlink Aviation Limited's Bombardier De Havilland Dash 8 DHC 8-315 aircraft registration 5Y- SLK. On board aircraft 5Y-NNJ was a flight crew of a flight instructor and a student while on board 5Y-SLK were 39 passengers, 2 flight crew, 2 cabin crew and an engineer respectively. Visual meteorological conditions prevailed at the time of the accident.

The Cessna C172M aircraft was performing circuits training flight on runway 07 Wilson airport (HKNW) while Bombardier De Havilland Dash 8 DHC 8-315 had taken off from runway 14 of the sameairport for a scheduled commercial passenger flight to Ukunda airport (HKUK), kwale County.

5Y-NNJ account

According to the operator of 5Y-NNJ, their aircraft started up at 0530 (0830) with two on board for circuits training flight and on their third touch and go runway 07, the aircraft collided midair with a Dash 8 5Y-SLK that had taken off runway 14. Aircraft 5Y-NNJ spiraled to the ground with the two on board suffering fatal injuries.

5Y-SLK account

According to the flight crew of 5Y-SLK who had earlier completed a return flight 082/082 to Kisumu International airport (HKKI) from HKNW, it prepared for departure from HKNW on flight 053 to Diani with 44 on board. At 0611 (0911) the crew requested for start up clearance from the air traffic control (ATC) and requested flight level 190 which was approved. For this sector, the pilot-in-command (PIC) was the pilot flying and the first officer (FO) was the pilot monitoring.

Before start checklist was performed, engines started successfully and after start checklist was done, the crew requested to taxi. At 0629 (0929) 5Y-SLK was cleared via taxiway C to holding point 14 and assigned a squawk code before being released to tower controller. Tower controller advised 5Y-SLK to line up runway 14 and gave ATC clearance "cleared 9,000 ft level change enroute, departure 14, set course TV". The FO read back the clearance and tower acknowledged it as correct. The crew performed below the line check and lined up RWY 14 awaiting departure clearance. Takeoff clearance wasreceived from

the tower controller and the crew was told to look out for traffic upwind RWY 07. The upwind traffic was also advised to look out for the DHC 8 departing RWY 14 for the TV. Thereafter the 5Y-SLK crew performed above the line checks and commenced takeoff roll.

At 0633 (0933) the PIC advanced power levers then called out "set power", FO called out "spoilers down, auto feather armed and power set". At 60 knots (kts) the FO called 60 kts and the PIC, "my stick". At V_1/V_R, FO called out "V_1/V_R rotate" and the PIC rotated. At positive rate of climb, FO called out "positive rate" and the PIC called "gear up". Tower switched 5Y-SLK to contact approach radar 122.3MHz. FO switched frequency from 118.1 MHz to 122.3 MHz and the crew continued with climb as per the clearance. At 400ft, FO called "400ft VFRI" and PIC called out "flaps 0, IAS 145". Accordingto the crew, during this time the PIC had visual traffic to his 8 o'clock position which he described as being well clear of conflict.

At about 0634 (0934), as 5Y-SLK continued to climb to the TV, at approximately 6,000ft, the crew heard a loud bang and felt an impact. The PIC felt an imbalance (a yaw) and immediately tried to recover stability of the aircraft. The PIC stopped climbing to the TV and turned towards the visual marker and the assumed altitude maintained was 6,200ft. FO called ATC and requested to route back to aerodrome of departure. ATC requested reason for turn back and FO responded "we had an air incident". ATC asked "what type of air incident" and the FO responded "possibly with another aircraft".ATC cleared 5Y-SLK to join final RWY 32 and FO read back the clearance. The crew switched to HKNW frequency 118.1MHz and were given landing clearance for RWY 32.

5Y-SLK landed at HKNW at 0637 (0937). There was no further incident and once the aircraft was parked, all on board disembarked. Upon inspection, it was found that part of the right horizontal stabilizer leading edge de-icing boot was missing. There was no other damage to the aircraft.

Duty air traffic controller's account

The duty air traffic controller at the time of the midair collision accident reported to work at 0300 (0600) and carried out checks on equipment and inspection of the airfield.

According to the duty air traffic controller, aircraft 5Y-SLK departing HKNW for HKUK called at the holding point of RWY 14 and the air traffic controller issued line up instructions. Thereafter the air traffic controller called Nairobi approach radar to obtain ATC clearance for 5Y-SLK. Clearance was given, 9,000ft to set course position Stony, IFR Enroute, and relayed the same to the pilot.

After obtaining a readback from the pilot, the air traffic controller instructed SYSLK to standby for departure due traffic. At this time, 5Y-NNJ was on final RWY 07 and the air traffic controller issued touch and go clearance. When 5Y-NNJ was on upwind of RWY 07, the air traffic controller issued 5Y- NNJ with traffic information on 5Y-SLK that was to depart RWY 14 maintaining runway headingwhich 5Y-NNJ acknowledged. At 0633 (0933), the air traffic controller issued 5Y-SLK traffic information on 5Y-NNJ which was on crosswind of RNY 07 and traffic landing RWY 07 short of RWY 14 (5Y-PSJ) and takeoff clearance. 5Y-SLK acknowledged the traffic information and Takeoff clearance. After getting airborne, 5Y-SLK was transferred to Nairobi approach radar.

At 0635 (0935), Nairobi approach radar called the duty air traffic controller to advise that aircraft 5Y-SLK was returning back RWY 32 for landing due to suspected collision. Immediately after the call, 5Y-SLK established contact with the duty air traffic controller and advised he was positioning for RWY 32. The duty air traffic controller gave joining instructions for RWY 32 and immediately instructed 5Y- ENA who was lined up RWY 14 to vacate the runway and advised the 5Y-CDL of the DHC 8 (5Y-SLK) positioning for final RWY 32.

The duty air traffic controller then advised 5Y-SLK of 5Y-CDL who had just departed RWY 14. On inquiring if any assistance was needed, 5Y-SLK responded in the negative. the duty air traffic controller gave 5Y-SLK a landing clearance and it landed safely at 0638 (0938).

The duty air traffic controller then tried to raise 5Y-NNJ several times with no response. 5Y-CDL advised that she had seen something flying low on the upwind leg of RWY 14. At this time, the duty air traffic controller requested 5Y-NNP who was on final and had earlier reported that it had not seen 5Y- NNJ, to do a low pass on downwind RWY 07 to try and check the position of 5Y-NNJ.

At 0643 (0943), the duty air traffic controller advised ARFFS that he had negative contact with a circuit training flight.

While on early downwind RWY 07 (to the right of upwind RWY14), 5Y-NNP reported to have sighted 5Y-NNJ.

At this time, the tower called ARFFS and activated the crash alarm advising on the position of the crashed aircraft. The tower also advised other responding agencies.

During this time, tower was able to request other aircraft within the airspace including two helicopters (5Y-LUV and 5VC18) to proceed to the site for rescue. At 0659 (0959), 5Y-LUV reported sighting the wreckage and landing at the site to assist.

Due to proximity of the crash site to upwind of RWY 14, tower closed RWY14 and re-routed all departures to RWY07 to facilitate the rescue exercise at the crash site.

As the emergency response was ongoing, the duty air traffic controller continued handling aerodrome traffic on RWY 07 until he handed over watch at 0800 (1100).

Upon receipt of the crash alarm at 0647 (0947), Airport Rescue and firefighting services (ARFFS) responded and arrived at the 5Y-NNJ accident site in the Nairobi National Park 18 minutes later. Access to the accident site posed a huge challenge to ARFFS due to previous night's rain within the locality.

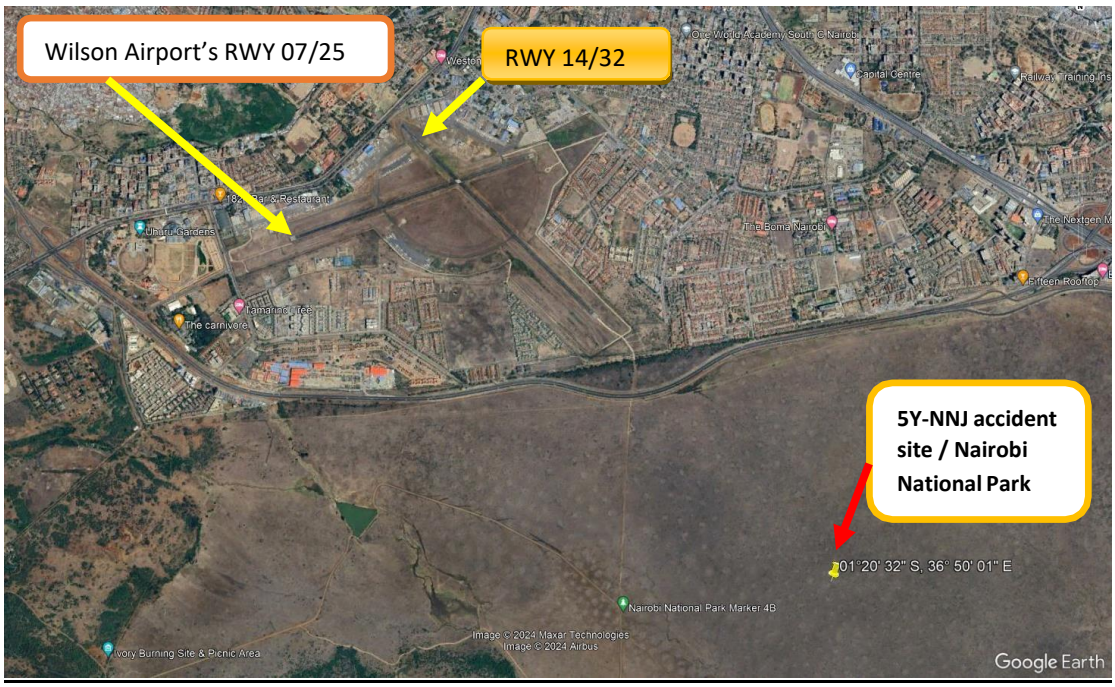

FIGURE No. 1 – Aerial view of Wilson airport and 5Y-NNJ crash site (source: Google earth, with AAID annotations).

1.2 Injuries to persons

Injuries	Crew		Passengers		Others
	5Y-NNJ	5Y-SLK	5Y-NNJ	5Y-SLK	
Fatal	2	0	0	0	0
Serious	0	0	0	0	0
Minor/None	0	05	00	39	

1.3 Damage to Aircraft

1.3.1. Aircraft A – Cessna 172M

FIGURE No. 2 and 3 – Photos of the accident site of 5Y-NNJ

The aircraft was destroyed on coming into contact with the Bombardier De Havilland Dash 8 DHC 8- 315 aircraft and on impact with terrain. The fuselage broke into several sections with the front section, wing, nose and main landing gear, and part of the empennage (vertical stabilizer and rudder) remaining localised in one area. The rest of the empennage (right and left horizontal stabilizer, elevator and trim tab) rested at various locations near the main wreckage.

1.3.2. Aircraft B – Bombardier De Havilland Dash 8 DHC 8-315

FIGURE No. 4 – A photo of 5Y-SLK parked outside the operator's hangar after the midair collision accident

FIGURES No. 5 and 6 – Photos of the missing section of right horizontal stabilizer leading edge de-icing boot

FIGURE No. 7- A photo of the right outboard horizontal stabilizer leading edge de-icing boot at the 5Y-NNJ crash site

The aircraft sustained minor damage to the right horizontal stabilizer de-icing boot. The missing right outboard horizontal stabilizer leading edge de-icing boot was found at the accident site near the main wreckage of 5Y-NNJ.

Post accident visual examination of the two aircraft revealed no deficiencies prior to the accident.

1.4 Other damage

Not applicable

1.5 Personnel Information

1.5.1. The flight instructor of 5Y-NNJ

According to records availed to the investigation by the Approved Training Organization (ATO), at the time of the accident, the 25 year old flight instructor held a Commercial Pilot's License (CPL –

Aeroplane) with Cessna 172 rating, and Cessna 172 flight instructor's rating valid until 23 October 2024 and a Class 1 Medical Certificate with limitations/restrictions, valid for 12 months until 22 October 2024 in accordance with the current Kenya Civil Aviation Authority (KCAA) personnel licensing requirements. The pilot's last ATO's ground check proficiency (airlaw) was conducted on 03 January 2024.

Pilot license	CPL	
Ratings	Cessna 172	since 14 October 2021
Instructor's rating	Cessna 172	Since 24 October 2022
Medical expiry date	22 October 2024	
License expiry date	23 October 2024	
Total flying hours	673.2	
Total hours on type	673.2	
Hours on type (as PIC)	424.9	
Hours on type (as co-pilot)	N/A	
Hours, last 90 days	TBA	
Hours, last 28 days	72	
Hours, last 14 days	13	
Hours, last 07 days	8	
Hours, last 24 hours	0.5	
Hours, rest since previous duty	>12	

1.5.2.The Student Pilot of 5Y-NNJ

According to records availed to the investigation by the Approved Training Organization (ATO), at the time of the accident, the 20 year old student held a student pilot's license (SPL - flying machines) valid until 30 January 2025 and a Class 2 Medical Certificate with limitations/restrictions, valid for 24 months until 31 January 2025 in accordance with the current KCAA personnel licensing requirements.

The student pilot was flying in preparation for a private Pilot's License.

Pilot license	SPL
Medical expiry date	31 January 2025
License expiry date	30 January 2025
Total flying hours	48.7
Total hours on type	48.7
Hours, last 90 days	TBA
Hours, last 28 days	0
Hours, last 14 days	0
Hours, last 07 days	0
Hours, last 24 hours	TBA
Hours, rest since previous duty	>24

1.5.3. Pilot in Command of 5Y-SLK

According to records availed to the investigation by the operator of 5Y-SLK, at the time of the accident, the 36 year old pilot in command (PIC) held an airline transport Pilot's license (ATPL – Aeroplanes) with Cessna 172, 208, Beechcraft Baron BE 58 and DHC Dash 8 ratings, (and Cessna 172, 208, Beechcraft Baron BE 58 flight instructor's ratings) valid until 15 January 2025 and a Class 1 Medical Certificate with no limitations/restrictions, valid for 12 months until 19 October 2024 in accordance withthe current KCAA personnel licensing requirements.

Pilot license	ATPL
Ratings	Cessna 172, Cessna 208, Beechcraft Baron BE 58 and DHC Dash 8
Instructor's rating	Cessna 172, Cessna 208 and Beechcraft Baron BE 58
Medical expiry date	19 October 2024
License expiry date	15 January 2025
Total flying hours	7,547.5
Total hours on type	1,618.2
Hours on type (as PIC)	666.2
Hours on type (as co-pilot)	TBA
Hours, last 90 days	176.3
Hours, last 28 days	61.8

Hours, last 14 days	24.9
Hours, last 07 days	14.3
Hours, last 24 hours	0
Hours, rest since previous duty	>12

1.5.4. The First Officer of 5Y-SLK

According to records availed to the investigation by the operator of 5Y-SLK, at the time of the accident, the 37 year old first officer held a commercial Pilot's license (CPL - Aeroplane) with Cessna 172, Cessna 208, Piper PA 34 and DHC Dash 8 ratings, valid until 02 November 2024 and a Class 1 Medical Certificate with no limitations/restrictions, valid for 12 months until 02 October 2024 in accordance withthe current KCAA personnel licensing requirements.

Pilot license	CPL
Ratings	Cessna 172, Cessna 208, Piper PA 34 and DHC Dash 8
Medical expiry date	02 October 2024
License expiry date	02 November 2024
Total flying hours	3,229.4
Total hours on type	110.5
Hours on type (as PIC)	0
Hours, last 90 days	133.3
Hours, last 28 days	43.7
Hours, last 14 days	13.5
Hours, last 07 days	13.5
Hours, last 24 hours	2.4
Hours, rest since previous duty	>12

1.6 Aircraft Information

1.6.1. Aircraft registration 5Y-NNJ (Cessna 172M)

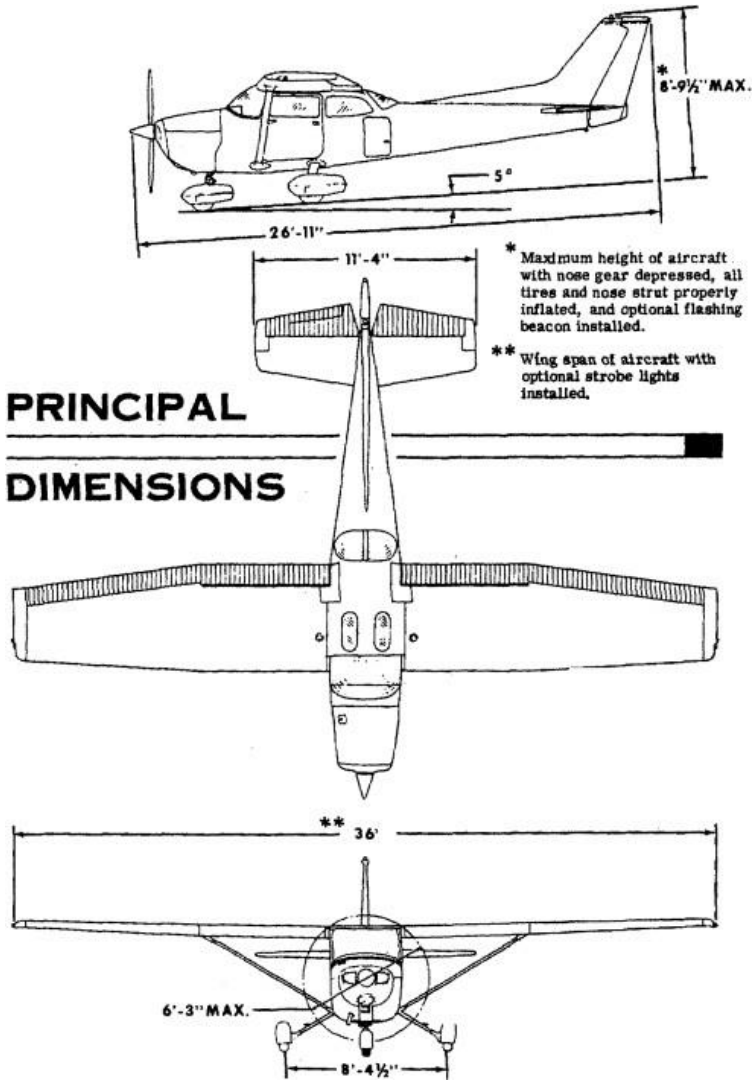

FIGURE No. 8 – Principal dimensions of a Cessna C172M

The accident aircraft was a Cessna C172M aircraft, serial number 172-65726. It was a high wing, single engine aircraft, with a tricycle landing gear configuration and a steerable nose wheel. It was powered by a Lycoming 0-320-E2D, 150 HP at 2700 RPM four-cylinder, horizontally opposed, reciprocating engine.

Manufacturer	Textron Aviation Inc.
Type and model	Cessna C172M

Serial number	172-65726
Aircraft year of manufacture	1976
Nationality / Registration Mark	Kenyan, 5Y-NNJ
Name of Operator	Ninety Nines Flying School
Certificate of Registration issued on	02 August 2018
Validity of Certificate of Airworthiness	05 January 2025
Total airframe time	12,289.1 hours
Time since renewal of certificate of airworthiness	102.9
Engine type (No.)	Lycoming 0-320-E2D (1No.)
Engine serial number	L-34169-27A
Engine Time Run Since New (hours)	13,396.2
Engine Time Run Since Complete Overhaul (hours)	1,734.8
Propeller (No.)	McCauley propeller (1No.)
Fuel type used	AVGAS

1.6.2. Aircraft registration 5Y-SLK (Bombardier De Havilland Dash 8 DHC 8-315)

Aircraft registration 5Y-SLK is Bombardier De Havilland of Canada Dash 8 DHC 8-315, serial number 574. It is four - abreast, narrow - body, short - to medium - range aircraft, powered by Pratt & Whitney Corp PW123E twin turboprop engines.

Manufacturer	Bombardier Inc.
Type and model	Bombardier De Havilland Dash 8 DHC 8-315

Serial number	574	
Aircraft date of Manufacture	28 September 2001	
Nationality / Registration Mark	Kenyan, 5Y-SLK	
Name of Operator	Safarilink Aviation Limited	
Certificate of Registration	19 December 2016	
Validity of Certificate of Airworthiness	31 October 2024	
Category of Certificate of Airworthiness	Commercial Air Transport (Passengers)	
Airframe time since renewal of certificate of airworthiness (hours)	456	
Total airframe time since new (hours)	31,997.5	
Airframe cycles since new	34,971	
Engine type (No.)	Pratt & Whitney Corp PW123E (2No.)	
Engine Serial number (No. 1, No.2)	TM-AW0046	TM-AW0041
Engine date of Manufacture (No. 1, No.2)	30 May 2001	19 April 2001
Engine time run since H.S.I/Repair (hours) (No. 1, No.2)	426.2	14,835.3
Engine time run since overhaul (hours) (No. 1, No.2)	426.2	18,818.6
Engine cycles since overhaul (No. 1, No.2)	430	20,842
Engine time run since new (hours) (No. 1, No.2)	32,152.9	30,545.3
Engine cycles since new	48,661	34,939
Fuel type used	Jet A-1	

Propeller – Number 1 engine (blades No.)	Hamilton Sundstrand Aerospace 202303017 (hub) (4)

Propeller year of manufacture	13 October 2023
Duration of flight (hours)	426.2
Time since overhaul (hours)	426.2
Propeller – Number 2 engine (blades No.)	Hamilton Sundstrand Aerospace 14SF-23 (4)
Propeller date of manufacture	20 December 2001
Duration of flight (hours)	29,785.7
Time since overhaul (hours)	2,627.3
Auxiliary Power Unit (APU) (Type, Model, Part No., Serial No., Date of manufacture)	APS 500, T-62T-4007B, 167301-101, JA 0022, 22 September 1990
APU meter read (hours/cycles)	2,017.06, 5,443
APU hours/cycles since last meter read	14.15, 38
APU time since repair (hours/cycles)	2.016, 5,439
APU time since new (hours/cycles)	30,036.36, 60,012

1.6.3. Maintenance Records (5Y-NNJ)

At the time of the accident, aircraft 5Y-NNJ had a valid Certificate of Airworthiness in the Commercial Air Transport (Passengers) Category issued by KCAA, valid until 05 January 2025. A review of the aircraft records indicated that the aircraft had no outstanding defects prior to the accident flight. The aircraft was certified, equipped, and maintained in accordance with existing KCAA regulations and approved procedures. The most recent scheduled 150 hours maintenance check was conducted on 14 February 2024. The check was performed by Solid Horizon Ltd, a Wilson airport based KCAA Approved Maintenance Organization (AMO). At the time of the accident, the aircraft and engines had flown a total of 12,289.1 and 13,396.2 hours since new respectively. The aircraft fueling records availed by the ATO indicated that the aircraft was lasted fueled with 99 litres of fuel two days prior to the accident. No Technical Log (TechLog) entries were availed.

1.6.3. Maintenance Records (5Y-SLK)

At the time of the accident, aircraft 5Y-SLK had a valid Certificate of Airworthiness in the Commercial Air Transport (Passengers) Category issued by KCAA, valid until 31 October 2024. A review of the aircraft records indicated that the aircraft had no outstanding defects prior to the accident flight. The aircraft was certified, equipped, and maintained in accordance with existing KCAA regulations and approved procedures. The most recent scheduled maintenance L check was conducted on 01 March 2017. The check was performed by Safarilink Aviation Ltd, KCAA Approved Maintenance Organization (AMO). At the time of the accident, the aircraft and engines had flown a total of 31,997.5, 32,152.9 and 30,545.3 hours since new respectively.

The aircraft fueling records and technical Log (TechLog) indicated that the aircraft's departure fuel from HKUK was 3,500 lbs while arrival fuel at HKUK was 3,200 lbs and defect description was damage on the right leading edge of the horizontal stabilizer.

The two aircraft were fitted with transponders and were serviceable at the time of the accident.

1.6.4. Mass and Balance

Not considered a factor. The mass and centre of gravity were within the prescribed limits during each aircraft's phase of operation.

1.7 Meteorological Information

The Aerodrome Routine Meteorological Report (METAR) issued by Kenya Meteorological Department at 0600 (0900) stated that HKNW experienced weather as follows:

The wind direction was from 040 at 7knots with prevailing visibility of 9.999 KM or greater and a broken cloud layer with its base at 2,200ft above ground level. Temperatures were at 20 degrees, dew point temperatures of 16 degrees and pressure of 1025 mb. The weather at Wilson airport and itsenvirons was suitable for a VFR flight. Weather not considered a factor in this accident.

1.8 Aids to Navigation

At the time of the accident, navigation aids (precision approach path indicator (PAPI) and landing lights) available at HKNW were serviceable.

1.9 Communications

The voice transcription: Wilson Tower Frequency 118.1MHz: voice transcript for 5Y-SLK And 5Y-NNJ

TIME (UTC)	STATION TX	STATION RX	INTELLIGENCE
WILSON TOWER			
0615:08	5YNNJ	Wilson Tower	Wilson tower November November Juliet
0615:11	Wilson Tower	5YNNJ	Five Yankee November November Juliet good morning behind the traffic short final zero seven line up runway zero seven and wait behind
0615:19	5YNNJ	Wilson Tower	to line up runway zero seven behind the traffic November November Juliet
0615:23	Wilson Tower	5YNNJ	correct
Unrelated transmission from other traffic			
0617:04	Wilson Tower	5YNNJ	Five Yankee November November Juliet runway zero seven surface wind zero six zero zero five knots cleared for takeoff right turn out
0617:12	5YNNJ	Wilson Tower	cleared for takeoff with a right turn out November November Juliet
Unrelated transmission from other traffic			
0618:49	Wilson Tower	5YNNJ	Five Yankee November November Juliet pilatus rolling runway one four on a statehouse departure look out

0618:54	5YNNJ	5YNNJ	will look out for the traffic November November Juliet
Unrelated transmission from other traffic			
0619:51	Wilson Tower	5YSLN	from visual marker direct army camp look out for one extending downwind to abeam the monastery
0619:56	5YSLN	Wilson Tower	copied traffic visual marker direct army camp lima november
0620:00	Wilson Tower	5YNNJ	and Five Yankee November November Juliet that's your traffic caravan visual marker for army camp report abeam the monastery look out
0620:07	5YNNJ	Wilson Tower	report abeam monastery and look out November November Juliet
Unrelated transmission from other traffic			
0628:52	Wilson Tower	5YNNJ	Five Yankee November November Juliet
0629:04	Wilson Tower	5YNNJ	Five Yankee November November Juliet
Unrelated transmission from other traffic			
0629:23	Wilson Tower	5YNNJ	five yankee november november juliet
0629:25	5YNNJ	Wilson Tower	go ahead
0629:26	Wilson Tower	5YNNJ	able to turn at your current position for final number one?
0629:28	5YNNJ	Wilson Tower	aye confirm
0629:29	Wilson Tower	5YNNJ	turn in
0629:31	5YNNJ	Wilson Tower	turn in now
Unrelated transmission from other traffic			
0630:24	Wilson Tower	5YSLK	and five yankee sierra lima kilo copy atc you're cleared initially nine thousand feet expect ifr enroute to set course stony after departure
0630:31	5YSLK	Wilson Tower	cleared initially nine thousand feet ifr e… expect

			further uuuh climb enroute and to set course stony sierra lima kilo
0630:44	Wilson Tower	5YSLK	atc readback correct standby for departure
0630:46	5YSLK	Wilson Tower	standby sierra lima kilo
0630:48	Wilson Tower	5YNNJ	five yankee november november juliet runway zero seven surface wind zero six zero five knots cleared touch and go
0630:55	5YNNJ	Wilson Tower	clear touch and go runway zero seven november november juliet
Unrelated transmission from other traffic			
0632:33	Wilson Tower	5YNNJ	and november november juliet possible traffic a dash eight shortly departing one four on a runway heading look out
0632:38	5YNNJ	Wilson Tower	looking out
0632:40	5YSLK	Wilson Tower	sierra lima kilo ready after the vacating traffic on the runway
0632:43	Wilson Tower	5YSLK	uuh roger with that traffic in sight once clear traffic landing zero seven short of one four another one now on crosswind of zero seven for circuits runway one four zero six zero zero five knots cleared for take-off
0632:55	5YSLK	Wilson Tower	copied both traffic cleared take-off one four sierra lima kilo
Unrelated transmission from other traffic			
0633:50	Wilson Tower	5YSLK	five yankee sierra lima kilo radar one two two decimal three
0633:53	5YSLK	Wilson Tower	to radar one two two three sierra lima kilo good day
0633:55	----------	----------	*inaudible transmissions*
Unrelated transmission from other traffic			
0635:32	5YSLK	Wilson Tower	wilson tower five yankee sierra lima kilo
0635:34	Wilson	5YSLK	five yankee sierra lima kilo

	Tower		
0635:36	5YSLK	Wilson Tower	routing back for runway three two
0635:39	Wilson Tower	5YSLK	uh roger standby traffic now upwind report final three two
0635:44	5YSLK	Wilson Tower	copied
0635:45	Wilson Tower	5YENA	and uh five yankee echo november alpha
0635:48	5YENA	Wilson Tower	go ahead echo november alpha
0635:50	Wilson Tower	5YENA	uh roger traffic positioning for three two vacate the runway and hold at the loop
0635:57	5YENA	Wilson Tower	will vacate the runway and hold at the loop echo november alpha
0636:02	Wilson Tower	5YCDL	five yankee charlie delta lima able to turn left for silos
0636:08	5YCDL	Wilson Tower	able we have the dash eight visual
0636:10	Wilson Tower	5YCDL	uh roger roger clear of the dash eight look out
0636:15	5YCDL	Wilson Tower	clear of the dash eight looking out delta lima
0636:17	Wilson Tower	5YSLK	and sierra lima kilo there's a traffic now on a statehouse departure look out report clear
0636:25	----------	----------	*inaudible*
0636:26	Wilson Tower	5YNNP	and five yankee november november papa to go around next report on the downwind
0636:31	5YNNP	Wilson Tower	november papa zero seven land short of zero. one four
0636:35	Wilson Tower	5YSLK	and five yankee sierra lima kilo traffic on the go around of runway zero seven continue approach for three two surface wind zero three… zero six zero at one zero knots
0636:45	5YSLK	Wilson Tower	continue for three two sierra lima kilo
0636:47	Wilson Tower	5YSLK	any assistance required?
0636:48	----------	----------	tower five yankee…

	-		
0636:49	---------- -	----------	*interference*
0636:51	Wilson Tower	5YSLK	five yankee sierra lima kilo roger runway three two surface wind calm clear to land three two
0636:58	5YSLK	Wilson Tower	clear to land three two sierra lima kilo
0637:00	Wilson Tower	5YNNJ	and five yankee november november juliet
0637:46	5YCDW	Wilson Tower	and tower confirm charlie delta whisky can line up behind the vacating traffic
0637:50	Wilson Tower	5YCDW	negative standby
0637:52	5YCDW	Wilson Tower	standing by
0637:53	Wilson Tower	5YENA	and five yankee echo november alpha to lineup one four and wait
0637:57	5YENA	Wilson Tower	to line up one four and wait echo november alpha and ready to copy atc now
0638:02	Wilson Tower	5YENA	on request
0638:04	Wilson Tower	5YPJP	and five yankee papa juliet papa
0638:07	5YPJP	Wilson Tower	go for juliet papa
0638:08	Wilson Tower	5YPJP	to expect to hold at the loop to give way to the dash eight vacating for phoenix
0638:13	5YPJP	Wilson Tower	okay copied to hold at the loop juliet papa
0638:16	Wilson Tower	5YSLK	and five yankee sierra lima kilo traffic entering the loop to hold to… once clear one two one decimal nine
0638:23	5YSLK	Wilson Tower	okay once clear via charlie one two one nine sierra lima kilo
0638:34	5YSMH	Wilson Tower	and sequence for sierra mike hotel
0638:45	5YNNP	Wilson Tower	five yankee november november papa downwind zero seven to land

0638:49	Wilson Tower	5YNNP	five yankee november november papa roger report abeam the monastery
0638:55	5YNNP	Wilson Tower	report abeam monastery five yankee november november papa
0638:58	Wilson Tower	5YNNJ	five yankee november november juliet position
0639:04	Wilson Tower	5YNNJ	five yankee november november juliet
0639:09	----------	----------	*inaudible sound*
0639:10	Wilson Tower	5YNNJ	five yankee november november juliet
0639:16	Wilson Tower	5YNNP	and five yankee november november papa
0639:18	5YNNP	Wilson Tower	go for papa
0639:19	Wilson Tower	5YNNP	confirm in sight with november november juliet
0639:23	5YNNP	Wilson Tower	uh negative on the look-out
0639:26	Wilson Tower	5YNNP	roger
0639:31	5YENA	Wilson Tower	tower echo november alpha
0639:32	Wilson Tower	5YENA	five yankee echo november alpha
0639:34	5YENA	Wilson Tower	ready to copy atc and ready for departure
0639:37	Wilson Tower	5YENA	roger standby
0639:41	Wilson Tower	5YNNJ	and five yankee november november juliet
0639:52	Wilson Tower	5YNNJ	five yankee november november juliet
0640:03	Wilson Tower	5YNNP	and five yankee november november papa
0640:06	5YNNP	Wilson Tower	go for papa

0640:08	Wilson Tower	5YNNP	uh roger negative contact with november november juliet she was doing circuits report if you have traffic arround downwind zero seven
0640:17	5YNNP	Wilson Tower	will report november papa
0640:22	5YCDW	Wilson Tower	tower five yankee charlie delta whisky
0640:25	Wilson Tower	5YCDW	five yankee charlie delta whisky
0640:27	5YCDW	Wilson Tower	uh line up sequence
0640:30	Wilson Tower	5YCDW	five yankee charlie delta whisky roger standby
0640:38	5YSMH	Wilson Tower	and also for mike hotel
0640:52	5YCDW	Wilson Tower	*inaudible* delta whisky can take intersection departure
0641:00	5YNNP	Wilson Tower	november papa abeam monastery negative traffic
0641:29	Wilson Tower		and five yankee november papa
0641:31	5YNNP	Wilson Tower	november papa extended downwind past abeam monastery negative traffic
0641:36	Wilson Tower	5YNNP	uh roger you can make an orbit overhead monastery and look out for traffic justaround mid downwind runway zero seven for circuits
0641:46	5YNNP	Wilson Tower	okay make an orbit around monastery look out for traffic november papa
0641:51	5YNNP	Wilson ToweR	and confirm left orbit
0641:53	Wilson Tower	5YNNP	affirm left orbit around monastery
0641:55	5YNNP	Wilson Tower	we'll make left orbit around monastery november papa
0642:02	RNG841	Wilson Tower	tower renegade eight four one
0642:08	Wilson Tower	5YENA	five yankee echo november alpha standby departure there's a traffic that was doing circuits nil contact standby standby

0642:15	5YENA	Wilson Tower	standing by echo november alpha
0642:19	5YCDL	Wilson Tower	tower from charlie delta lima
0642:21	Wilson Tower	5YCDL	five yankee charlie delta lima
0642:22	5YCDL	Wilson Tower	eh just for your information we departed behind the dash and something around upwind of runway one four seems to have been going a bit low
0642:33	Wilson Tower	5YCDL	uh copied the traffic going low just confirm uh upwind of one four
0642:38	5YCDL	Wilson Tower	immediately the dash departed that was upwind runway one four
0642:42	Wilson Tower	5YCDL	ah roger roger thank you
0642:45	5YNNP	Wilson Tower	tower november papa will uh proceed overshoot
0642:49	Wilson Tower	5YNNP	roger continue for overshoot
0642:51	5YNNP	Wilson Tower	go around then downwind zero seven
0643:47	5YNNP	Wilson Tower	tower november papa
0643:51	Wilson Tower	5YNNP	november november papa
0643:53	5YNNP	Wilson Tower	okay we'll proceed zero seven eh and do circuits along downind zero. corection orbit downwind zero seven to locate november juliet
0644:03	Wilson Tower	5YNNP	and five yankee november november papa
0644:05	5YNNP	Wilson Tower	we're requesting to proceed coming landing for zero seven
0644:08	Wilson Tower	5YNNP	roger confirm now going an overshoot zero seven
0644:11	5YNNP	Wilson Tower	negative coming overhead army camp
0644:14	Wilson Tower	5YNNP	ah roger

0644:16	Wilson Tower	5YNNP	confirm you're coming for a landing
0644:17	5YNNP	Wilson Tower	affirm sir
0644:19	Wilson Tower	5YNNP	roger continue approach zero seven
0644:21	5YNNP	Wilson Tower	continue november papa
0644:35	5YCDW	Wilson Tower	*inaudible* tower charlie delta whisky
0644:37	Wilson Tower	5YCDW	five yankee charlie delta whisky expect some delay
0644:48	Wilson Tower	5YNNJ	and five yankee november november juliet
0644:52	Wilson Tower	5YNNP	five yankee november november papa
0644:54	5YNNP	Wilson Tower	go for papa
0644:55	Wilson Tower	5YNNP	roger clear to land zero seven and if you're in contact with company then relay the same
0645:00	5YNNP	Wilson Tower	uh wilco november papa
0645:43	5YCDL	Wilson Tower	wilson tower five yankee charlie delta lima
0645:48	Wilson Tower	5YNNP	five yankee november november papa confirm instructor on board?
0645:50	5YNNP	Wilson Tower	affirm sir
0645:52	Wilson Tower	5YNNP	confirm you can do a low level just to look out for the traffic just upwind of one four and report
0645:56	5YNNP	Wilson Tower	able sir
0645:57	Wilson Tower	5YNNP	ah roger to make a low pass and just make a low level report if you have the traffuc in sight
0646:03	5YNNP	Wilson Tower	low level report traffic in sight november november papa
0646:17	5YCDL	Wilson Tower	uh wilson tower five yankee charlie delta lima
0646:18	5YCDL	Wilson Tower	five yankee charlie delta lima uh this time boundary out and position last seen was upwind just to the right as we were making the turn we saw something go down

0646:29	Wilson Tower	5YCDL	ah roger roger thank you eighteen five
0646:30	5YCDL	Wilson Tower	eighteen five
0646:33	Wilson Tower	5YNNP	november november papa you copied exact position
0646:34	5YNNP	Wilson Tower	eh copied sir
0646:35	Wilson Tower	5YNNP	uh roger
0647:32	Wilson Tower	RNG841	and renegade eight four one
0647:34	RNG841	Wilson Tower	ah eight four one at the holding point
0647:38	Wilson ToweR	RNG841	expect some delay
0647:39	RNG841	Wilson Tower	some delay eight four one
0647:40	Wilson Tower	5YPJP	papa juliet papa you copied
0647:43	5YPJP	Wilson Tower	copied delay juliet papa
0647:52	5YNNP	Wilson Tower	tower november november papa
0647:54	Wilson Tower	5YNNP	november november papa
0647:56	5YNNP	Wilson Tower	request left orbit current position
0647:58	Wilson Tower	5YNNP	approved approved
0648:20	5YNNP	Wilson Tower	tower november papa i have uh the juliet in sight
0648:28	Wilson Tower	5YNNP	five yankee november november papa say again
0648:31	5YNNP	Wilson Tower	okay i have the traffic in sight ah request zero seven to land
0648:35	Wilson Tower	5YNNP	uh roger report final number one
0648:39	5YNNP	Wilson Tower	report final number and uh any assistance kindly will be appreciated
0648:42	Wilson	5YNNP	roger coordinating with fire at the moment

	Tower		
0648:45	5YNNP	Wilson Tower	expedite kindly
0648:48	5YMSN	Wilson Tower	tower the five yankee mike sierra november
0648:52	Wilson Tower	5YMSN	mike sierra november standby
0648:59	5YLUV	Wilson Tower	uh tower goodmorning helicopter lima uniform victor
0649:03	Wilson Tower	5YLUV	helicopter lima uniform victor
0649:04	5YLUV	Wilson Tower	goodmorning sir lima uniform victor helicopter from olmalo to karen four on board two hours endurance just checked zone in at this time and six five maintaining and estimating karen time zero six five seven
0649:18	Wilson Tower	5YLUV	five yankee lima uniform victor roger just next destination in sight qnh one zero two five
0649:23	5YLUV	Wilson Tower	thank you uniform victor
0649:33	Wilson Tower	5YNNP	and five yankee november november papa able to land zero seven short of one four
0649:37	5YNNP	Wilson Tower	able
0649:38	Wilson Tower	5YNNP	roger clear land zero seven short of one four surface wind zero six zero zero five knots
0649:43	5YNNP	Wilson Tower	clear land zero seven short of one four november november papa
0649:48	5YKOF	Wilson Tower	wilson tower this is five yankee kilo oscar foxtrot
0649:51	Wilson Tower	5YKOF	five yankee kilo oscar foxtrot
0649:53	5YKOF	Wilson Tower	good morning inbound from naivasha loldia estimating monastery at 0653 over
0650:04	Wilson Tower	5YKOF	report overhead monastery for final zero seven qnh 1025
0650:05	----------	----------	crash alarm heard in background

TIME	TX	RX	INTELLIGENCE
0650:57	FIRE	Wilson Tower	tower
0650:58	Wilson Tower	Fire Ambulance	fire ambulance
0651:00	Fire Ambulance	Wilson Tower	confirm the position of the aircraft?
0651:01	Wilson Tower	Fire Ambulance	just upwind of runway one four
0651:04	Fire Ambulance	Wilson Tower	upwind of one four copied
0651:06	Wilson Tower	Fire Ambulance	and proceed enter runway one four
0651:09	Fire Ambulance	Wilson Tower	enter one four that's copied
0651:39	Wilson Tower	5YNNP	five yankee november november papa
0651:41	5YNNP	Wilson Tower	go for papa
0651:43	Wilson Tower	5YNNP	roger, confirm the traffic was on fire?
0651:45	5YNNP	WILSON TOWER	aah negative
0651:47	Wilson Tower	5YNNP	roger continue foxtrot base
0651:49	5YNNP	Wilson Tower	continue foxtrot base, november papa
0651:52	FIRE THREE	Wilson Tower	wilson tower from fire three
0651:54	Wilson Tower	FIRE THREE	fire three
0651:55	FIRE THREE	Wilson Tower	confirm again the position of the aircraft?
0651:58	Wilson Tower	FIRE THREE	roger standby the the the the traffic was just on early downwind runway zero seven for circuits

			upwind of one four, just to the right of upwind of one four… outside the airfield…. fire three?
0652:15	FIRE THREE	Wilson Tower	yeah, confirm the position of the aircraft
0652:19	Wilson Tower	FIRE THREE	roger, the traffic is just reported to have gone down just upwind of one four to the right outside the airfield, around the national park
0652:25	FIRE THREE	Wilson Tower	tower, confirm the national park?
0652:28	Wilson Tower	FIRE THREE	say again
0652:29	FIRE THREE	Wilson Tower	at the national park?
0652:30	Wilson Tower	FIRE THREE	affirm affirm
0652:32	FIRE THREE	Wilson Tower	*inaudible*
0652:33	Wilson Tower	FIRE THREE	say again
0652:35	FIRE THREE	Wilson Tower	*inaudible*
0652:37	Wilson Tower	FIRE THREE	just past the aerodrome, upwind upwind of the national park across southern bypass… fire three you copied?
0653:00	Wilson Tower	FIRE THREE	and fire three
0653:03	FIRE THREE	Wilson Tower	aahh fire three go ahead
0653:06	Wilson Tower	FIRE THREE	confirm you copied the position
0653:09	FIRE THREE	Wilson Tower	copied, the *inaudible* is at the national park. there is no other access we can use apart from

			this one
0653:15	Wilson Tower	FIRE THREE	roger roger
0653:25	5YLUV	Wilson Tower	and tower uniform victor we are just coming up to the racecourse shortly. we are happy to go check on traffic if you want.
0653:32	Wilson Tower	5YLUV	lima uniform victor, say again
0653:35	5YLUV	Wilson Tower	do you need someone to locate that traffic
0653:37	Wilson Tower	5YLUV	roger the traffic was just reported to have crashed around the national park, just upwind of one four
0653:45	5YLUV	Wilson Tower	ok would you like us to go have a look
0653:46	Wilson Tower	5YLUV	affirm affirm, any assistance will be appreciated
0653:52	5YLUV	Wilson Tower	requesting to route direct from my current position
0653:53	Wilson Tower	5YLUV	from your current position route direct and i have got traffic approaching overhead army camp. report that traffic insight
0654:02	5YLUV	Wilson Tower	okay will report the army camp traffic insight *interruption* one in the park
0656:36	Wilson Tower	5YLUV	five yankee lima uniform victor from present position you can proceed direct to upwind one four, cross zero seven
0656:42	5YLUV	Wilson Tower	will cross zero seven at this altitude and will look upwind zero…one four
0656:46	Wilson Tower	5YLUV	correct
0657:09	5VC18	Wilson Tower	wilson tower five victor charlie one eight, good morning
0657:14	Wilson Tower	5VC18	five victor charlie four zero three, go ahead

0657:15	5VC18	Wilson Tower	five victor charlie one eight we are this time joining finals one four for the search and rescue exercise
0657:24	Wilson Tower	5VC18	roger 5vc18 copied i have got another traffic finals one four chopper proceeding to site and continue report traffic in sight and continue on runway one four
0657:35	5VC18	Wilson Tower	aah copied continue on one four and we have the traffic on threshold one four and continuing to the crash site. confirm it's the end of runway one four?
0657:44	Wilson Tower	5VC18	affirm, just upwind of runway one for to the right. it was just reported to the end of runway one four, to the right side of runway one four upwind. there is fire ambulance and fire truck on site report having the traffic in sight.
0657:55	5VC18	Wilson Tower	thank you. proceeding to the crash site. victor charlie one eight.
0659:13	5YLUV	Wilson Tower	tower just standby on frequency, lima uniform victor we have located the traffic and yeah we are landing here.
0659:22	Wilson Tower	5YLUV	five uniform victor roger
0659:30	Wilson Tower	5VC18	five victor charlie one eight with the traffic ahead in sight report on ground
0659:47	Wilson Tower	5VC18	and five victor charlie one eight

VOICE TRANSCRIPTION BETWEEN NAIROBI APPROACH RADAR AND NAIROBI WILSON TOWER TIELINE ON 05 MARCH 2024

TIME UTC	**STATION TX**	**STATION RX**	**INTELLIGENCE**
0634:45	Wilson Tower	APP	RADAR…hello

0634:49	APP	Wilson Tower	Hello…I have Sierra Lima Kilo she is saying she is returning ***inaudible*** confirm
0634:55	Wilson Tower	APP	Hajaniita ata **(Loosely translated - he hasn't even called me)*
0634:57	APP	Wilson Tower	Okay she is calling you
0634:59	Wilson Tower	APP	Sawa **(Loosely translated – Ok)*
0635:00	APP	Wilson Tower	Check whether you have anyone…anyone departing behind or ahead
0635:02	Wilson Tower	APP	Eeehe
0635:03	APP	Wilson Tower	Check for their call sign *inaudible* Yeah... call them
0635:06	Wilson Tower	APP	Okay okay, okay copied yes
0635:08	APP	Wilson Tower	Call anyone who had lifted just before…
0635:11	Wilson Tower	APP	Sawa - **(Loosely translated – Ok)*

RADAR TRANSCRIPT

	5Y-NNJ					**5Y-SLK**				
Time	**DME***	**Bearing**	**ROC**	**ALT**	**GS/HDG**	**DME***	**Bearing**	**ROC**	**ALT**	**GS/HDG**
0630:04	1.8	216	=	063	093/294					
0630:37	1.8	240	=	061	084/306					
0631:17	1.2	254	=	058	066/043					
0631:49	0.7	253	=	056	063/070					
0631:16	0.2	260	-200	055	064/066					
0632:59	0.5	070	=	057	064/070					
0633:23	1.0	098	+600	058	075/118					
0633:44	1.4	108	+700	060	080/127					
0633:49	1.5	111	+400	060	080/129	0.7	133	-	056	133/141
0634:00	1.6	117	=	060	078/148	1.1	132	-	057	131/138
0634:08	1.7	127	=	061	082/174	1.5	132	+1,000	059	129/134
0634:14	1.7	128	=	061	075/159	1.6	132	+1,200	060	129/134
0634:16	1.7	135	=	061	078/186	1.8	131	+1,300	061	129/133

0634:23	1.8	136	=	058	077/190	2.0	132	+500	061	132/133
0634:30	1.8	139	=	-	078/192	2.2	132	+400	061	133/132
0634:36	**Lost track of 5Y-NNJ**					2.7	130	=	061	138/131
0635:09						3.7	146	=	061	181/197
0635:31						3.7	162	=	062	155/241
0635:57						3.1	176	=	060	142/299
0636:15						2.3	174	=	059	129/353
0636:42						1.4	163	=	058	140/005
0637:09						1.1	129	=	056	116/028
0637:30						0.4	111	=	054	121/139
0637:37						0.2	101	=	055	108/316

**Point of reference: RWY 07/14 Intersection*

Preliminary radar playback data indicates that the two aircraft collided midair at approximately 6,100 ft.

1.10 Aerodrome Information

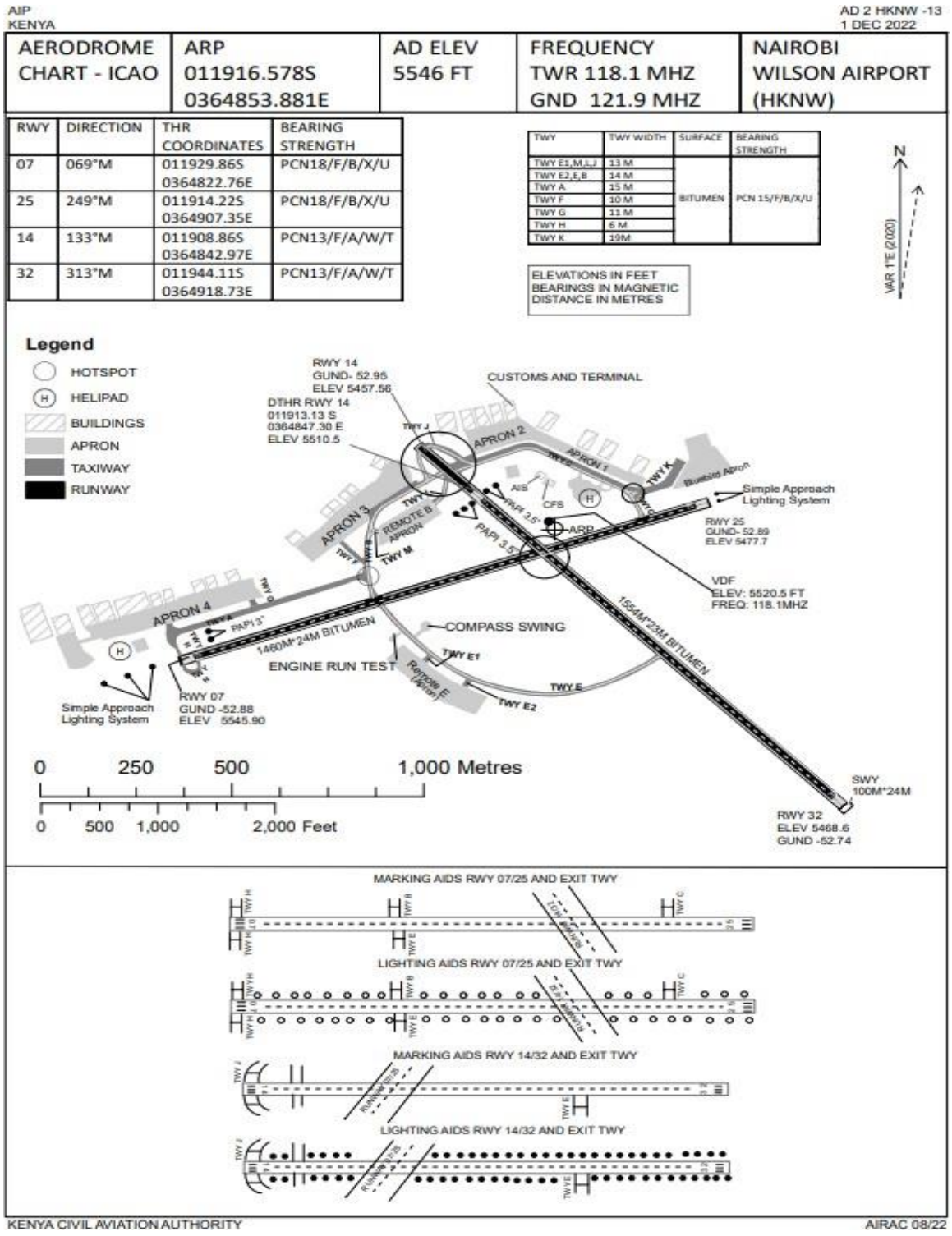

FIGURE No. 9 – HKNW AERODROME CHART (Source: KCAA)

Wilson airport is located at latitude 01° 19' 18.19" S and longitude 036° 48' 53.40" E at an elevation of 5,546 feet above mean sea level (AMSL). It is a medium-sized airport situated about 5km south of Nairobi Central Business District. It serves both domestic and international traffic and has two runways with bituminous surface:

- RWY 07/25 measures 4,790 feet (1,460m) long by 78.74 ft (24m) wide;
- RWY 14/32 measures 5,098.42 feet (1,554m) long by 75.45 ft (23m) wide.

The Airport has the following bituminous surface taxiways; A, B, C, E, E1, E2, F, G, H, J, K, L, and M. It is also used by ATOs for training flights. The aerodrome is operated by the Kenya Airports Authority (KAA). It has a KCAA manned Air Traffic Control (ATC) and permits IFR/VFR types of traffic.
The rescue and fire fighting services category is CAT 5 and rescue equipment is available.

HKNW Air Traffic Services (ATS) airspace designation and lateral limits are:

> **Area I:** Area bounded by lines joining points 011554.17S, 0365204.56E; 010823.60S, 0370258.50E then along the counter clockwise arc of a circle of 15NM radius centered on 011909.40S, 0365229.10E to 012243.80S, 0363757.30E; 011916.58S, 0364853.88E to point of origin.
>
> **Area II:** Area bounded by lines joining points 011916.58S, 0364853.88E; 012243.80S, 0363757.30E then along the counter clockwise arc of a circle of 15NM radius centered on 011909.40S, 0365229.10E to 013213.10S, 0364503.70E to point of origin.

The vertical limits are ground (GND) to 9,000 ft AMSL while transition altitude is 9,000 ft AMSL. HKNW Airspace is in the D classification. For above or 9,000 ft MSL, this portion becomes part of Area II under the control of Nairobi/HKJK. Above 6,500ft, Area II becomes part of Area III.

HKNW was the aerodrome of departure for Aircraft 5Y-NNJ performing circuits training flights from runway 07 while 5Y-SLK took off from runway 14.

The condition of runway, taxiways and apron surfaces at HKNW requires frequent repairs and under NOTAM HK: B0007/2024, there are taxiway edge lights that require attention and repair.

1.11 Flight Recorders

FIGURE No. 9 – A photo depicting the Cockpit Voice Recorder (upper) and Flight Data Recorder

1.11.1 Cockpit Voice recorder

5Y-NNJ

Not applicable. Flight Recorders are not required by KCAA regulations for this category of aircraft.

5Y-SLK

FIGURE No. 10 – A photo depicting the Cockpit Voice Recorder

A Honeywell solid state memory Cockpit Voice Recorder (CVR) Part No. 980-6022-001, Serial No. 1378, data code 9847 was recovered from the aircraft in good condition. The CVR will be read out and analysed as early as possible in a read-out facility at the TSB-Canada under the supervision of the Investigator-In-Charge (IIC).

1.11.2 Flight Data Recorder

5Y-NNJ

Not applicable. Flight Recorders are not required by KCAA regulations for this category of aircraft.

5Y-SLK

FIGURE No. 11 – A photo depicting the Flight Data Recorder

A Honeywell solid state memory Flight Data Recorder (FDR) Part No. 980-4700-003, Serial No. 0666 data code 9420 (MFR 97896) was recovered from the aircraft in good condition. The FDR will be read out and analysed as early as possible in a read-out facility at the TSB-Canada under the supervision of the Investigator-In-Charge (IIC).

1.12 Wreckage and Impact Information

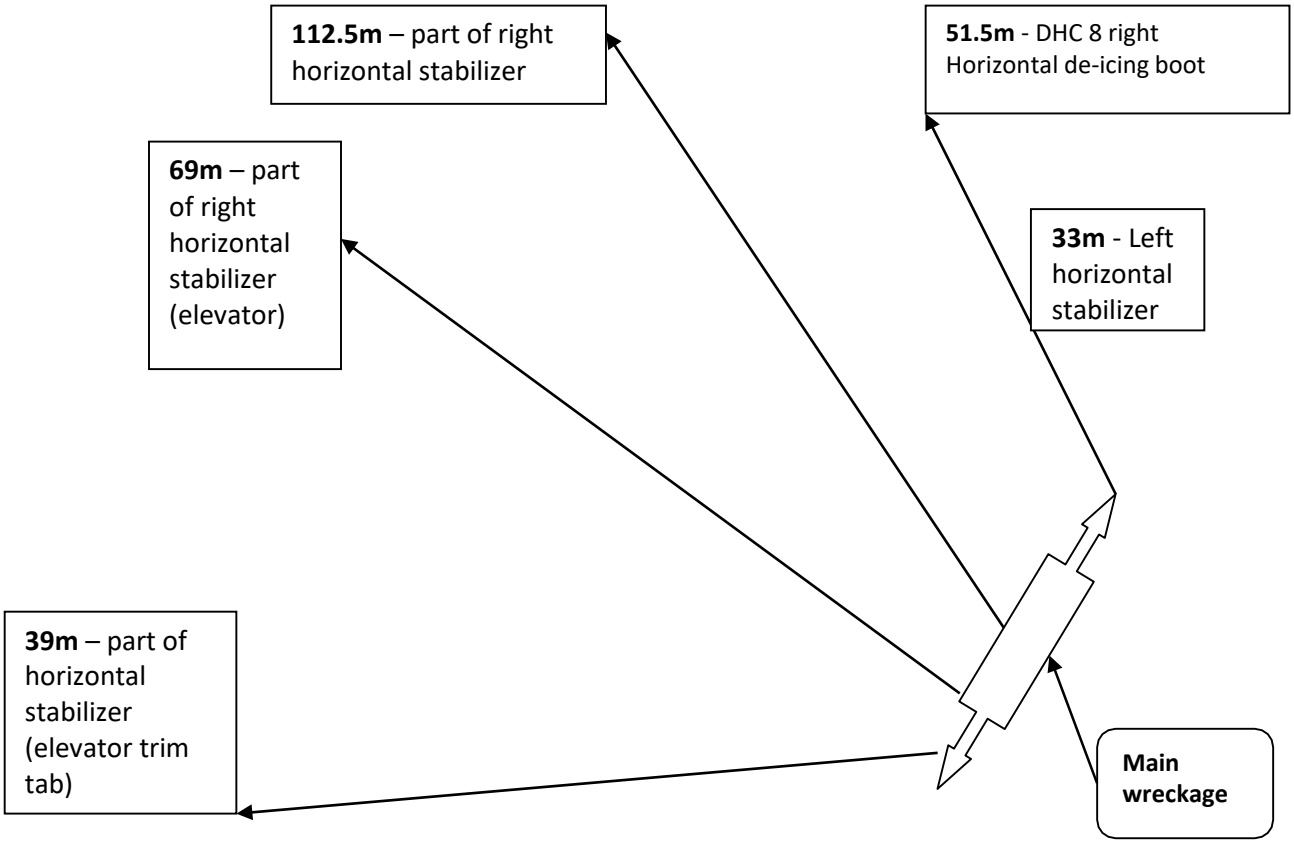

FIGURE No. 12 – A general sketch of the 5Y-NNJ accident site wreckage distribution and distance from the main wreckage to other parts – not to scale

The accident site of 5Y-NNJ was about 1.663 NM inside the Nairobi National Park to the right side of extended centreline of RWY 14 (upwind), coordinates 1º 20' 32" S, 36º 50' 01" E. The horizontal stabilizer of 5Y-NNJ broke midair into several pieces when the aircraft came into contact with 5Y- SLK's right horizontal stabilizer leading edge de-icing boot. The parts fell at a distance from the main wreckage. The initial midair collision point of 5Y-NNJ was the lower empennage (tail plane) severing the horizontal stabilizer that fell first at different locations along the flight path and in three pieces comprising part of the left horizontal stabilizer and the elevator, part of the left stabilizer, and part of the left elevator and elevator trim tab. 5Y-SLK 99mm width right horizontal stabilizer leading edge de-icingboot was found 18.5m away from the left horizontal stabilizer of 5Y-NNJ. The main wreckage was found to be the last along the flight path and it broke into several sections with the front section, wing, nose and main landing gear, and part of the empennage (vertical stabilizer and rudder) remaining localised in one area. The engine and propeller were covered under the nose wheel assembly. The cockpit and various indicators were destroyed. Fuel tanks raptured and there was evidence of fuel saturation on the ground.

5Y-NNJ was found to have also been destroyed by deceleration forces as it impacted the levelled terrain in a high angle. Part of the tail plane separated from the main fuselage and curved upwards 40° at 130m aft of the baggage area (reference station 108.00).

Onsite investigation observed that the midair collision occurred when the tail section of 5Y-NNJ came into contact with the 5Y-SLK's right horizontal stabilizer leading edge de-icing boot. The aircraft, having spiralled to the ground, was found facing the opposite direction to the flight path.

1.13 Medical and Pathological Information

1.13.1 Medical and Pathological Information - (5Y-NNJ)

Results of autopsy examination conducted on one of the flight crew indicated that the injuries were due to blunt force trauma consistent with a plane crash. As a result of the nose down aircraft attitude at impact, high deceleration forces, and break-up of the aircraft structure, the injuries to the crew were fatal.

The crew's full forensic toxicology testing was requested.

1.13.2 Medical and Pathological Information – (5Y-SLK)

The flight crew was not on prescribed drugs. Toxicological examination was conducted to check if the flight crew's performance was affected by fatigue, alcohol, drugs and/or medication at the time of the accident.
There was no evidence that physiological factors or incapacitation affected the performance of flight crew members.

1.14 Fire

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

1.15 Survival Aspects

1.15.1 5Y-NNJ

ARFFS responded and arrived at the accident site 18 minutes after the crash alarm was raised. The main wreckage was found to have rested in a nose down attitude by the first responders to the crash site. The accident was not survivable and the two occupants were fatally injured on impact. Recovery of the fatally injured occupants was done immediately after a scene documentation process by the relevant authorities. The seats and harness showed signs of damage.

1.15.2 5Y - SLK

The accident was survivable. The aircraft landed successfully at HKNW after the midair collision. All the 44 occupants on board survived uninjured and upon landing exited the aircraft unaided.

There was minor damage to the aircraft's right horizontal stabilizer de-icing boot. Seats and harness were all intact and showed no sign of damage.

The ELT was not activated.

1.16 Tests and Research

Not applicable.

1.17 Organizational and Management Information

1.17.1 Ninety Nines Flying school.

Aircraft Operator : Ninety Nines Flying School
Address : Nairobi, Kenya

Ninety Nines Flying school is a holder of an ATO issued by KCAA and valid until 31 October 2024. The ATO operates from its main base at HKNW conducting training in fixed-wing aircraft. Its approved courses are; private pilot's license (ground and flight training), commercial pilot's license (ground and flight training), flight instructors rating, instrument rating, and light operations officer training. The school has in place a Safety Management System (SMS) to promote safety culture and identify areas for improvement. Prior to the accident, the ATO's portfolio of fleet included 12No. Cessna C172 and a

Piper PA 34 aircraft. The ATO also has a synthetic flight trainer (simulator). The key management personnel include an accountable manager, head of training, quality manager, chief instructor, chief ground instructor, chief flight instructor, and safety manager. The ATO does not have approved satellite bases.

1.17.2 Safarilink Aviation Limited

Aircraft Operator : Safarilink Aviation Limited

Address : Nairobi, Kenya

Safarilink Aviation Limited is a holder of an AOC issued by KCAA and valid until 30 November 2024. The AOC operates from its main base at HKNW. The AOC offers domestic scheduled services to various destinations within Kenya and across the border into northern Tanzania. The company was formed in 2004 and it also provides private charter flights. Its fleet includes 8No. Cessna C208 and 4No.DHC8.

1.17.3 Kenya Airports Authority

Aerodrome Operator : Kenya Airports Authority (KAA)

Address : Nairobi, Kenya

KAA was established by an act of Parliament in 1992. The KAA Act, Cap 395 (Act No. 3 of 1991, Act No. 8 of 2009, Act No. 18 of 2014), provides for the powers and functions of the Authority. Its head office is on the property of Jomo Kenyatta International Airport (HKJK), Nairobi. It is the owner and operator of HKNW. KAA is also the owner and operator of HKUK among others.

The condition of runway, taxiways and apron surfaces at HKNW requires frequent repairs.

Under NOTAM HK: B0007/2024, there are taxiway edge lights that require attention and repair.

1.17.4 Kenya Civil Aviation Authority

Aerodrome Operator : Kenya Civil Aviation Authority

Address : Nairobi, Kenya

KCAA was established on 24 October 2002 by the Civil Aviation (Amendment) Act, 2002 with the primary functions towards; Regulation and oversight of Aviation Safety and Security; Economic regulation of Air Services and development of Civil Aviation; Provision of Air Navigation Services, and Training of Aviation personnel KCAA; as guided by the provisions of the convention on international civil aviation, related ICAO Standards and Recommended Practices (SARPs), the Kenya Civil Aviation Act, 2013 and the civil aviation regulations. KCAA's mandate is to plan, develop, manage, regulate and operate a safe, economically sustainable and efficient civil aviation system in Kenya, in accordance with the provisions of the Civil Aviation Act, 2013.

Air Navigational Services (ANS) is a directorate of KCAA whose mandate is Aeronautical Information Management (AIM), air traffic services (ATS), and engineering services.

The Role of AIM is to ensure the timely flow of Aeronautical Information necessary for the Safety, Regularity and Efficiency of National/International Air Navigation. AIS collects, collates, assembles, edits, formats, originates, publishes and distributes Aeronautical Information/ Data necessary for Safety, Regularity and Efficiency of Air Navigation concerning the entire Nairobi Flight Information Region (FIR). THE Services offered are: NOTAM, Flight planning and Briefing Service, Aeronautical Information products, Charting and Procedure, Consultancy Services, and Aeronautical Study.

Air traffic service roles are flight information service, alerting service, and air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service.)
The objectives of air traffic services are to: Prevent collisions between aircraft; Prevent collisions between aircraft on the maneuvering area and obstructions on that area; Expedite and maintain an orderly flow of air traffic; Provide advice and information useful for the safe and efficient conduct of flights; Notify appropriate authorities/organizations regarding aircraft in need of search and rescue under the control of an air traffic control unit.

Engineering Services Department is responsible for management of air navigation infrastructure that enables provision of air traffic services in Kenya's airspace. In undertaking this responsibility, the department ensures that the infrastructure so deployed is available, safe, secure, reliable and efficient round the clock.

HKNW is among some of the KCAA manned aerodromes in the county. It operates between 0330 (0630) to 1730 (2030). It serves both light and medium aircraft covering general aviation, training flights and scheduled commercial flights which operate under VFR and IFR. At the time of the accident, HKNW was manned by ATC personnel on duty.

With effect from 21 March 2024, HKNW operational hours have changed to between 0330 (0630) and 1900 (2200) under NOTAM HK: B0009/2024 (B0009/24).

In the last decade, there has been recorded growth of aviation industry in Kenya and the number of air traffic has risen. Under its e-services, KCAA has an Incident Reporting Mandatory Occurrence Reporting (MOR) and Voluntary Reporting (VOR) system to facilitate the collection of information on actual or potential safety deficiencies. An operator has reported at least 10 cases of conflicting traffic in the last 12 months involving its fleet. Records from the operator show that 6 of its near miss incidents occurred within HKNW.

1.18 Additional Information

Not applicable.

1.19 Useful and Effective Investigative Techniques

Not applicable.

2. SUMMARY

The ongoing investigation will establish the facts, circumstances, conditions, causes or probable cause, contributing factors, and analyze, as appropriate, all the documented information.