



AIRCRAFT ACCIDENT REPORT

NPF/2022/26/01/F

Nigerian Safety Investigation Bureau

Final Report on the Accident Involving a Bell 429 Helicopter operated by Nigeria Police Air Wing with Nationality and Registration marks 5N-MDA, which occurred at Sir Abubakar Tafawa Balewa Airport Bauchi, Nigeria on 26 January 2022



This report is produced by the Nigerian Safety Investigation Bureau, (NSIB) formerly the Accident Investigation Bureau (AIB) Nigeria, Nnamdi Azikiwe International Airport, Abuja.

The report is based on the investigation carried out by Nigerian Safety Investigation Bureau, in accordance with Annex 13 to the Convention on International Civil Aviation, Nigerian Safety Investigation Bureau (Establishment) Act, 2022, and Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2023.

In accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of aircraft accident/serious incident investigations to apportion blame or liability.

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Safety Recommendations in this report are addressed to the Regulatory Authority of the State (NCAA) as well as other stakeholders, as appropriate. This authority ensures enforcement. © **Nigerian Safety Investigation Bureau Nigeria, 2024**



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GLOSSARY OF ABBREVIATION USED IN THIS REPORT

ATC	Air Traffic Control
AW	Aural Warning
CSN	Cycles since new
CVR	Cockpit Voice Recorders
DATCO	Duty Air Traffic Controller
DNAAN	Nnamdi Azikiwe International Airport, Abuja
DNBA	Abubakar Tafawa Balewa Airport, Bauchi
DNJO	Jos Airport
ETA	Estimated Arrival Time
FDR	Flight Data Recorder
GA	Go-Around
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
IMC	Instrument Meteorological Conditions
NAMA	Nigerian Airspace Management Agency
NCAA	Nigeria Civil Aviation Authority
Nig. CARs	Nigeria Civil Aviation Regulations
NPAW	Nigeria Police Air Wing
NPF	Nigeria Police Force



NSIB	Nigerian Safety Investigation Bureau
PF	Pilot Flying
PM	Pilot Monitoring.
PNCF	Permit for non-commercial flight
SOPs	Standard Operating Procedures
TAWS	Terrain Awareness Warning System
VFR	Visual Flight Rules



5N-MDA

Report number:	NPF/2022/26/01/F
Registered owner:	The Nigeria Police
Operator:	Nigeria Police Airwing
Aircraft type and model:	Bell 429
Manufacturer:	Bell Textron, Canada
Year of manufacture:	2012
Nationality and registration marks:	5N-MDA
Serial number:	57084
Location:	2.1 NM from the end of runway 35 outside the perimeter fence of Sir Abubakar Tafawa Balewa Airport Bauchi, Coordinate 10° 28' 6" N, 9° 44' 14" E
Date and Time:	26 January 2022 at 19:47 h

Unless otherwise stated, all times in this report are local time (UTC +1).

SYNOPSIS

Nigerian Airspace Management Agency (NAMA) notified the Nigerian Safety Investigation Bureau (NSIB) of the occurrence on 26 January 2022. Investigators were dispatched to the site the following day, and a post-occurrence assessment commenced under the provisions of the Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2023 and ICAO Annex 13.



5N-MDA

On 26 January 2022, at 17:54 h, a Bell 429 helicopter owned by Nigeria Police Force (NPF) and operated by Nigeria Police Air Wing (NPAW) with nationality and registration marks 5N-MDA, departed Nnamdi Azikiwe International Airport, Abuja (DNAA) to Maiduguri on a Visual Flight Rules (VFR) flight plan with a planned technical stop at Sir Abubakar Tafawa Balewa Airport, Bauchi (DNBC). On board were 6 persons, including 3 crew members (Pilot, Co-pilot and Engineer) and three passengers with fuel endurance of 3 hours. The Pilot was the Pilot Flying (PF), while the Co-pilot was the Pilot Monitoring (PM).

At 17:45 h, 5N-MDA contacted Abuja Tower and requested an engine start to DNBC, which was granted. The tower then passed the prevailing wind as 110 / 04kts and further cleared 5N-MDA to lift, left turn out after lift. 5N-MDA responded, "Cleared to lift, left turn out, MDA."

5N-MDA tried to establish contact with Jos Tower, but after several trials, they could not. At 18:40 h, at Jos Airport (DNJO), they tried again to establish two-way communication with Jos Tower, but that was unsuccessful. The flight continued as filed.

According to the crew, at 18:46 h, 5N-MDA tried to establish initial contact with Bauchi Tower on 124.5 MHz, but there was no response. 5N-MDA came over the runway, and the PM was able to have visual contact with the runway centreline. Soon after, the PM lost visual contact with the centreline due to darkness and, therefore, advised for a Go-Around (GA) and pressed the GA button. 5N-MDA climbed to 3600 ft and travelled a distance of 3.6 nm from the field.

On the second attempt to land, the crew centred the needle and then "crawled" to see if the runway centre line was visible, but to no avail, which made the flight crew carry out another go-around.



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At about 19:47 h, the crew pulled up to avoid a tree during the final approach to land at the third attempt. One of the Main Rotor blades hit the branches of the tree, while the helicopter's Tail Rotor struck the tree, resulting in the accident.

The crew and passengers disembarked without injury.

The accident occurred at about 19:47 h, at night time, in Instrument Meteorological Conditions (IMC).

Causal factor

The decision to operate the flight outside the operation hours of Bauchi Airport after sunset.

Contributory factors

1. Nigeria Civil Aviation Authority (NCAA) safety oversight on NPAW was inadequate
2. The decision to embark on the flight without adequate dispatch preparation
3. The inability of Abuja ATC to advise the 5N-MDA crew accordingly before departure

Five (5) Safety Recommendations were made



1.0 FACTUAL INFORMATION

1.1 History of the flight

On 26 January 2022, at 17:54 h, a Bell 429 helicopter operated by Nigeria Police Air Wing (NPAW) with nationality and registration marks 5N-MDA, departed Nnamdi Azikiwe International Airport (DNAA) Abuja, to Maiduguri on a Visual Flight Rules (VFR) flight plan with a planned technical stop at Sir Abubakar Tafawa Balewa Airport, Bauchi (DNBC). On board were 6 persons, including 3 crew members (Captain, First officer and Engineer) and three passengers with fuel endurance of 3 hours.

5N-MDA was scheduled to depart DNAA to DNBC for a technical stop before proceeding to Maiduguri the next day. It was scheduled as a supplement for the first helicopter (5N-PEJ), which departed Abuja for Maiduguri earlier that day for administrative activities.

The Captain was the Pilot Flying (PF), while the First officer was the Pilot Monitoring (PM).

At 17:45 h, 5N-MDA contacted Abuja Tower and requested engine start to DNBC. Tower asked, "MDA, can you confirm you filed a flight plan?" MDA responded in the affirmative.

Abuja Tower then asked 5N-MDA for the planned Cruise Altitude to DNBC. 5N-MDA responded that they requested 5500 ft. Tower responded, "5.5ft to DNBC copied, Start-up approved QNH 1009 squawk 2723." 5N-MDA acknowledged.

At 17:50 h, the tower cleared 5N-MDA to Abuja Control Zone boundary en route Bauchi, not above 5500ft and to standby lift. The Tower then passed prevailing wind as 110/04kts and cleared 5N-MDA to lift, leaving turn out after lift. 5N-MDA responded, "Cleared to lift, left turn out, MDA".



5N-MDA

Abuja Tower transmitted the lift-up time as 17:54 h to 5N-MDA and requested to report an estimate when ready. 5N-MDA responded, "Zone out will be at time 05 next hour, and destination Bauchi will be at 16:30".

Tower acknowledged and transferred 5N-MDA to Abuja Radar on 127.9 MHz and further instructed to stay clear of DNP4. 5N-MDA acknowledged.

5N-MDA established contact with Abuja Radar. Abuja Radar identified 5N-MDA at 5 NM South East of Abuja Airport and requested an estimated Control Zone boundary out and estimated arrival time (ETA) Bauchi. 5N-MDA acknowledged, "Zone boundary out will be 06 next hour, and Bauchi will be at 37MDA".

According to the crew, Abuja Radar instructed 5N-MDA to contact Jos Tower on 122.7 MHz. 5N-MDA tried to establish contact with Jos Tower, but after several trials, it could not. 5N-MDA continued with the flight to DNBC as filed.

The crew further stated that at 18:40 h, abeam Jos Airport (DNJO), they tried again to establish two-way communication with Jos Tower, but that was unsuccessful. The flight continued as filed.

According to the crew, at 18:46 h, 5N-MDA tried to establish initial contact with Bauchi Tower on 124.5 MHz, but there was no response. 5N-MDA consistently tried to establish contact with Bauchi Tower at five-minute intervals until reaching the Bauchi Control Zone boundary, but there was no contact. 5N-MDA "continued with preparations for landing even though the crew were not sure of the actual operational hours of the aerodrome, but with the belief that even if the aerodrome was closed, provided the airport was illuminated, they could land". The crew further stated that at 5 NM to DNBC, there was no sign of any lighting at the airport as the entire airport was in complete darkness. 5N-MDA descended to 3,000 ft to position for runway 35 centreline using Global Positioning System (GPS). 5N-MDA came over the runway, and the PM was able to have visual contact with the runway centreline. Soon after, the PM lost visual



5N-MDA

contact with the centreline due to darkness, advised for a Go Around (GA), and pressed the GA button. 5N-MDA climbed to 3600 ft and travelled a distance of 3.6 nm from the field.

On the second attempt to land, the crew centred the needle and then “crawled” to see if the runway centre line was visible, but to no avail, which made the flight crew carry out another go-around.

During the final approach to land at the third attempt, the PM suddenly saw a tree on its flight path, which was neither detected by the Ground Proximity Warning System (GPWS) nor the Terrain Awareness Warning System (TAWS). The crew stated that both systems were certified functional prior to the flight. Also, the Aural Warning (AW) did not sound, and the visual display didn't indicate that the aircraft was approaching an obstacle.

At about 19:47 h, the crew pulled up to avoid a tree; one of the Main Rotor blades hit the branches of the tree while the helicopter Tail Rotor struck the tree, resulting in the accident. When the helicopter's skid had contact with the ground, Bauchi Tower called 5N-MDA on the radio, “Aircraft calling Bauchi tower,” and the PM replied, “We are on the ground.” Bauchi Tower asked, “Can you confirm on the ground air force side? “, but the crew did not respond.

The crew and passengers disembarked without injury.

The accident occurred at about 19:47 h, at night time, in Instrument Meteorological Conditions (IMC).



1.2 Injuries to persons

Injuries	Crew	Passengers	Others	Total in the aircraft
Fatal	Nil	Nil	Nil	Nil
Serious	Nil	Nil	Nil	Nil
Minor	Nil	Nil	Nil	Nil
None	3	3	Nil	6
Total	3	3	Nil	6

1.3 Damage to aircraft

The helicopter was substantially damaged.

1.4 Other damage

Nil

1.5 Personnel information

1.5.1 Captain

Nationality: Nigerian
Age: 58 Years
Licence type: Commercial Pilot Licence (Helicopter)
Licence: Valid till 31 January 2023
Aircraft ratings: Part 1: Bell 412
Part 2: Bell 429
Medical certificate: Valid till 07 April 2022



5N-MDA

Instrument rating:	Valid till 03 May 2022
Simulator:	Valid till 03 May 2022 (Bell 429)
Total flying time:	2550 h
Total on type:	160 h
Last 90 days:	85 h
Last 28 days:	10 h
Last 7 days:	5 h
Last 24 hours:	5 h

1.5.2 First officer

Nationality:	Nigerian
Age:	30 years
Licence type:	Commercial Pilot Licence (Helicopter)
Licence:	Valid till 28 August 2023
Aircraft ratings:	Part 1: R-66, Bell 429
Medical certificate:	Valid till 14 December 2022
Instrument rating:	Valid till 22 March 2022
Simulator:	Valid till 22 March 2022 (Bell 429)
Total flying time:	177 h
Total on type:	35:30 h
Last 90 days:	10 h
Last 28 days:	10 h
Last 7 days:	4 h



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Last 24 hours: Nil

1.5.3 Dispatcher

Nationality: Nigerian
Age: 44 years
Licence type: Flight Dispatcher Licence
Licence: Valid till 17 May 2026
Recurrency: Valid till 25 February 2022
Competency: Valid till 24 February 2022

1.6 Aircraft information

1.6.1 General information

Type: Bell 429
Manufacturer: Bell Helicopter Textron, Canada
Date of manufacture: 2012
Serial number: 57084
Registered owner/operator: Nigeria Police Airwing
Nationality and registration marks: 5N-MDA
Certificate of Airworthiness: Valid till 25 January 2023
Certificate of Insurance: Valid till 18 February 2022
Certificate of Registration: Issued 26 February 2013
Noise Certificate: Issued 14 March 2013
Airframe time: 589:48 h
Cycles since new (CSN): 1006



5N-MDA



Figure 1: **5N-MDA in NAIA police hangar before the occurrence**

1.6.2 Powerplant

Engine	Number 1	Number 2
Manufacturer	Pratt & Whitney Canada	Pratt & Whitney Canada
Model	PW207D1	PW207D2
Serial number	PCE-BLO173	PCE-BLO172
Time Since New (TSN)	688 h	688:12 h
Cycles Since New (CSN)	657	654

Fuel type used:

Jet A-1



1.7 Meteorological information

1800UTC Weather report for DNBC for January 26, 2022

CODED: METAR DNBC 261800Z 20006KT 4000 HZ NSC24/06 Q1017=

DECODED: Meteorological report issued at 1800UTC (0700 h) for Bauchi Airport on 26 January 2022: the wind direction was 200 degrees at 6 knots (3.1 metres per second); Horizontal visibility was 4000 m in haze with no cloud of operational significance, Temperature and Dew Point were 24°C and 06°C respectively while Mean Sea Level Pressure was 1017 hPa.

1.8 Aids to navigation

The conditions of the navigational aids at Abubakar Tafawa Balewa Airport, Bauchi (DNBC) on the day of the occurrence were as follows:

1.8.1 DNBC

1. `BCH` VOR/DME BCEP 115.6 MHZ	Unserviceable
2. `BU` NDB BCEP 323 KHZ	Serviceable
3. `IBT` ILS BCEP 111.3 MHZ	Unserviceable
4. Crash alarm bell and signal lamp	Serviceable
5. Wind direction and speed indicator	Unserviceable

1.9 Communications

There was two-way communication between Abuja ATC and the Helicopter from Engine Start, Taxi, and Lift up to the Control Zone boundary. 5N-MDA tried to establish contact with Jos Tower, but there was no response. There was no communication between 5N-MDA and the DNBC Tower before the occurrence.



Status of communication equipment at DNBC:

1. VHF frequency 124.5 MHZ (main)	Serviceable
2. VHF frequency 119.6 MHZ (secondary)	Serviceable
3. VHF frequency 121.7 MHZ (domestic)	Serviceable
4. HF frequency 9495/8903 kHz (variable)	Serviceable
5. ICOM mobile radio	Serviceable
6. ATC Digital clock and intercom	Serviceable

Information available to the Bureau showed that up to 19:00 h, NPAW did not request an extension of ATC operational hours, Kano ACC or Abuja Tower did not provide information about late operations, and DNBC did not receive a flight plan message. The Duty Air Traffic Controller (DATCO) in DNBC left duty at 19:00 h.

1.10 Aerodrome information

Sir Abubakar Tafawa Balewa Airport, Bauchi (DNBC), is located 14 miles (23 km) northwest of Bauchi town. The airport reference point is 10°29'00" N, 009°44'40" E and elevation of 1965 ft (599.067 m) with a runway orientation of 17/35. The length and width of the runway are 11155 ft (3,400 m) and 147.64 ft (45 m), respectively, with an asphalt surface. DNBC operation hours are from 07:00 h to 19:00 h.

1.11 Flight recorders

The helicopter was not fitted with a Flight Data Recorder (FDR) and Cockpit Voice Recorders (CVR) as required by regulation.



1.12 Wreckage and impact information

During the approach, the helicopter's Main Rotor blade hit the top branches of a 5 m high tree, while the Tail Rotor blades impacted and cut the tree trunk. The helicopter crash landed 20.60 m northeast of the tree on a magnetic heading of 359°. The crash site coordinate was 10° 28' 6" N, 9° 44' 14" E.

The damage sustained by the helicopter are:

1. One Main Rotor Blade was damaged
2. The Tail Boom of the helicopter was sheared off
3. The Tail Rotor Shaft was broken
4. The Tail Rotor Blades had minor damage at their Leading Edges
5. The helicopter's left side skid collapsed
6. The right side aft passenger window was broken
7. The right side Vertical Stabilizer was broken

5N-MDA



Figure 2: Left view of the helicopter post occurrence



Figure 3: Damaged Main Rotor Blade



Figure 4: Broken Tail Boom



Figure 5: Collapsed left side Skid



Figure 6: Damaged Vertical Stabiliser

1.13 Medical and pathological information

The Nigerian Airforce Clinic at Bauchi airport carried out toxicology and alcohol tests on the flight crew before the arrival of AIB safety investigators.

1.14 Fire

There was no pre or post-impact fire.

1.15 Survival aspect

The helicopter impacted the tree while hovering to land, and the damage to the main rotor blade was consistent with impact at low speed. The accident was survivable; there was liveable volume in the cockpit. The seat and seat restraints were found intact and



operated well. The crew and passengers exited the aircraft through the normal exit door.

1.16 Tests and research

Not Applicable.

1.17 Organisational and management information

1.17.1 The Nigerian Police Airwing (NPAW)

The Nigeria Police Air Wing (NPAW) is a unit under the Nigeria Police Force Operations Department that provides flight services, including search and rescue operations, Police air ambulance services, aerial patrol operations, VIP transport operations, and lifting of electoral personnel/material and other equipment.

The NPAW has a fleet of 14 aircraft, including 13 Bell helicopters (one B429, three B463, three B427, and six B412) and a Cessna Citation (560 XLS+)

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The Nigeria Civil Aviation Authority (NCAA) initially granted NPAW a permit for non-commercial flight (PNCF) on November 19, 2010. The PNCF was valid for three years from the date of issuance. According to the information available to the Bureau, the PNCF renewal process was ongoing at the time of the occurrence.

The evidence available to the Bureau indicated that NPAW had requested a six-month (06) extension for the installation of Type V FDR/CVR on six (06) Bell 412 helicopters but not the Bell 429.

NPAW does not have approved Standard Operating Procedures (SOPs).

The Bureau's information indicated that NPAW had only one staff member at the dispatch unit at the time of the incident.



They were also faced with the non-availability of communication/monitoring equipment for the dispatch unit to track flights during flight operations.

The dispatchers are not involved in the preparation of the aircraft before flight operations.

1.17.2 Nigeria Civil Aviation Authority (NCAA)

The Nigerian Civil Aviation Authority (NCAA) is the apex body responsible for the regulations and oversight of civil aviation activities in Nigeria. NCAA issues authorisations, licenses, approvals, permits and certificates to personnel, airline operators, air navigation services providers, aerodrome operators, and other service providers in the aviation sector. It exercises its privileges, among other means, by carrying out inspections and audits based on the instrumentality of the Civil Aviation Act of 2006 and the Nigeria Civil Aviation Regulations (Nig. CARs).

Extracts from Nig. CARs 2015

2.3.1.3. Authority to Act as a Flight crew member —

(a) A person shall not act as a pilot flight crewmember of an aircraft registered in Nigeria unless a valid licence or a validation certificate shows compliance with the specifications of this Part 2 and is appropriate to the duties to be performed by that person.

(b) No person may act as the PIC or co-pilot of an aircraft unless that person holds the appropriate category, class and type rating for the aircraft to be flown.

(c) During a skill test, the applicant acts as PIC, but the safety pilot will intervene in safety situations.

2.3.2. Category, Class and Type Ratings, Category ii/iii Authorisations, and Endorsements.

2.3.2.1.—(a) The holder of a pilot licence shall not be permitted to act as PIC or as co-pilot of an aircraft unless the holder has received the applicable ratings, authorisations and/or endorsements as follows :

(1) The appropriate aircraft category rating specified in this part;



- (2) The appropriate class rating when required in accordance within this part;*
 - (3) A type rating when required per this part;*
 - (4) An authorisation when required per this part; or*
 - (5) An endorsement when required per this part.*
- (b) The applicant shall meet the appropriate requirements of this part for the aircraft rating, authorisation or endorsement sought.*

8.6. Flight Planning and Supervision

8.6.1.1. Submission of a Flight Plan.

(a) Before operating one of the following, a pilot shall file a VFR or IFR flight plan, as applicable, for—

- (1) Any flight (or portion thereof) to be provided with ATC service;*
- (2) Any IFR flight within advisory airspace;*
- (3) Any flight within or into designated areas or along designated routes when so required by the Authority to facilitate the provision of flight information, alerting and search and rescue services;*
- (4) Any flight within or into designated areas or along designated routes, when so required by the Authority to facilitate coordination with appropriate military units or with ATC facilities in adjacent states in order to avoid the possible need for interception for identification; and*

(b) Any flight across international borders.

(c) The PIC shall submit a flight plan before departure or during flight to the appropriate ATC facility unless arrangements have been made to submit repetitive flight plans.

(1) Unless otherwise prescribed by the Authority, a pilot should submit a flight plan to the appropriate ATC facility—

(2) At least sixty minutes before departure; or



(3) If submitted during flight, at a time which will ensure its receipt by the appropriate ATC facility at least ten minutes before the aircraft is estimated to reach—

(i) The intended point of entry into a control area or advisory area; or

(ii) The point of crossing an airway or advisory route.

8.6.2.2. Adequacy of Operating Facilities.

(a) No person may commence a flight unless it has been determined by every reasonable means available that the ground and/or water areas and facilities available and directly required for such flight and for the safe operation of the aircraft are adequate, including communication facilities and navigation aids.

(b) An operator shall ensure that any inadequacy of facilities observed in the course of operations is reported to the Authority responsible for them without undue delay.

(c) Subject to their published conditions of use, aerodromes and their facilities shall be kept continuously available for flight operations during their published hours of operations, irrespective of meteorological conditions.

(d) An operator shall, as part of its safety management system, assess the level of rescue and fire fighting service (RFFS) protection available at any aerodrome intended to be specified in the operational flight plan in order to ensure that an acceptable level of protection is available for the aeroplane intended to be used.

(e) Information related to the level of RFFS protection that is deemed acceptable by the operator shall be contained in the operations manual.

8.8.3.9. Two-way Radio Communication Failure in VFR

(a) If radio failure occurs in VFR while under ATC control, or if VFR conditions are encountered after the failure, each pilot shall—

(1) Continue the flight under VFR;

(2) Land at the nearest suitable aerodrome; and

(3) Report arrival to ATC by the most expeditious means possible.



8.8.4.17. Execution of a Missed Approach Procedure.

(a) Each pilot operating a civil aircraft shall immediately execute an appropriate missed approach procedure when either of the following conditions exists:

(1) Whenever the required visual reference criterion is not met in the following situations:

(i) When the aircraft is being operated below MDA or

(ii) Upon arrival at the missed approach point, including a DH where a DH is specified and its use is required, and at any time after that until touchdown.

(2) Whenever an identifiable part of the aerodrome is not distinctly visible to the pilot during a circling manoeuvre at or above MDA unless the inability to see an identifiable part of the aerodrome results only from a normal bank of the aircraft during the circling approach.

8.14.2.11. Flight Preparation.

(a) The operator shall develop procedures to ensure that a flight is not commenced unless:

(1) The aircraft is airworthy and duly registered, and appropriate certificates concerning it are on board the aircraft;

(b) The instruments and equipment installed in the aircraft are appropriate, taking into account the expected flight conditions;

(c) Any necessary maintenance has been performed per Sub-part 8.14.10

(d) The mass of the aircraft and centre of gravity location is such that the flight can be conducted safely, taking into account the flight conditions expected;

(e) Any load carried is properly distributed and safely secured; and

(f) The aircraft operating limitations contained in the flight manual or its equivalent will not be exceeded.

8.14.2.12. Operational Flight Planning.



(a) An operator shall specify flight planning procedures to ensure the safe conduct of the flight based on considerations of aircraft performance, other operating limitations, and relevant expected conditions on the route to be followed and at the aerodromes concerned. These procedures shall be included in the operations manual.

8.14.9.4. Qualifications.

(a) Flight crew member licensing

(1) An operator shall:

(i) Ensure that each flight crew member assigned to duty holds a valid licence issued by the State of Registry, or if issued by another Contracting State, rendered valid by the State of Registry;

(ii) Ensure that flight crew members are properly rated; and

(iii) Be satisfied that flight crew members are competent to carry out assigned duties.

Extract from NCAA Technical Guidance Materials Volume 1 (General Inspector Handbook) Chapter 11 Section 2

Flight Operations Inspector - Principal Operations Inspector (POI)

I. Position Summary

The Principal Operations Inspector is the primary operations interface between assigned air carriers, other aviation entities, and the NCAA. Has program responsibility to ensure that assigned organisations meet Nigerian CARs concerning operations programs. Determines the need for and establishes work programs for surveillance and inspection of assigned organisations within manpower and budget limitations to assure adherence to the applicable regulations.

II. Duties and responsibilities

A. Technical administration



Assures continually that assigned organisations are properly and adequately organised, staffed, and equipped; have and conduct an adequate training program, including an acceptable record-keeping system; and have facilities and procedures that meet all regulatory requirements; Chairs joint NCAA-industry meetings; maintains regular contact with organisations assigned; and coordinates with top management officials. Requires or directs correction of deficiencies/discrepancies and refuses or withdraws approval if they cannot be resolved.

Is responsible for conducting enforcement investigations and preparing final reports and recommendations; Performs or supervises the emergency suspension of certificates or cancellation of operations specifications. Conducts or directs the re-examination of certificated airmen or re-certification of an operator or agency.

Conducts investigations of public complaints, government inquiries, and aircraft incidents and accidents;

Provides verbal and/or written technical assistance to legal counsel, testifies at court trials and formal hearings, and gives depositions.

Coordinates Minimum Equipment List (MEL) approvals with Principal Airworthiness Inspectors; Takes enforcement action in instances of non-compliance with the MEL;

Coordinates with other inspectors as required to accomplish additional air carrier surveillance.

B. Certification

Approves/accepts or disapproves/rejects manuals and revisions. May require amendments to previously approved manuals to correct any conflict with regulatory requirements, eliminate unsafe practices, and/or improve the specificity of instruction.

Evaluate training programs to ensure that they meet the requirements of the Nigerian CARs and associated NCAA guidance materials; Approves or disapprove these training programs, including flight simulators, training devices, or other equipment used in these programs;

Approves/disapproves designations of check airmen and recommends the appointment of designees.



Evaluate operations and facilities through on-site inspections and review reports by other inspectors or personnel; negotiate changes that are essential or desirable in their policies and procedures. Determines the appropriate methods and/or plans for implementing corrective action and determines through on-site inspection or inspector reports the effectiveness of corrective action taken.

Evaluate and approve/disapprove requests to operate under conditions not previously authorised and may prescribe additional conditions and limitations as appropriate.

Approves the original issuance of operations specifications and issues original operation certificates; Approves amendments to operations specifications.

Evaluate the safety of proposed changes in route or airport authorisations; Prescribe any changes required before approval.

Directs or participates in proving flight evaluations to determine compliance with Nigerian CARs; Recommends changes that will be required prior to approval.

C. Surveillance

Responsible for monitoring all phases of company operations, including training programs and records, base and station facilities, and route systems. Coordinates with and reviews reports from other inspectors and other personnel to identify trends that indicate deterioration in the safety of operations. Directs or suggests changes required to correct such trends.

Responsible for monitoring the activities of designated examiners, check airmen, and instructors.

D. Other

May be assigned other duties and responsibilities as required;

The inspector may be required to participate in the NCAA flight program as a flight crew member. If so, the inspector must meet the medical and flight currency requirements outlined in NCAA aircraft operation orders.

The inspector, when so directed, is required to keep an appropriate control point informed as to his/her whereabouts and the telephone number at which he/she can be reached in the event of an aviation incident/accident requiring NCAA investigation.



III. Supervision received

The inspector independently performs technical execution of assigned regulatory, certification and/or surveillance activities. An assigned supervisor provides general technical and administrative supervision. Actions taken are guided by adherence to Nigeria Civil Aviation Regulations, national and regional directives and sound management practices.

1.17.2.1 NCAA correspondence

Records from the NCAA indicated that the NPAW Permit for Non-Commercial Flights (PNCF) to conduct Corporate Aviation Operations was initially issued on November 19, 2010. The PNCF was later renewed on September 8, 2014. A letter dated February 20 2017, was sent to NPAW informing them of the date of expiry and Nig.CARs part 18.2.4.2 requirements to initiate the renewal process 6 months prior to expiry. NCAA did not receive further correspondence on the subject matter from NPAW; the permit expired on September 7, 2017, and is yet to be renewed.

The Permit for Non-Commercial Flight (PNCF) issued to Nigeria Police Air Wing (NPAW) had expired in September 2017 and had not been reissued or renewed since then.

Additional information available to the Bureau indicated that six (06) months extension approval was granted to NPAW for two (02) Bell 412 helicopters to be used for security operations and NPAW to provide a timetable with a dateline for the installation of CVR/FDR in all NPAW helicopters requiring CVR/FDR.



1.18 Additional information

In the course of conducting missed approaches the crew did not appropriately brief for the next approach nor was the aircraft prepared for the approach intended. Particularly during the transition from Visual Approach to GPS Approach, the preparation of the aircraft was conducted only a few miles to touchdown thus making it impossible for the PM to look out for obstacles on the approach path to the runway.



2.0 ANALYSIS

2.1 General

The aircraft had a valid Certificate of Airworthiness.

The mass and centre of gravity of the helicopter was not determined, as there was no substantial document to avail detailed information about the prescribed limits of the helicopter before the departure of the accident flight.

The investigation revealed that the Nigeria Police Airwing (NPAW) Operation's Unit coordinated inadequately during the flight preparation.

The Permit for Non-Commercial Flight (PNCF) issued to the Nigeria Police Air Wing (NPAW) by the NCAA expired in September 2017 and was not renewed.

The investigation determined that the accident flight was improperly dispatched and it was not operated per the extant regulations, as contained in Subpart 8.14, subsections 8.14.2.11, 8.14.2.12 and 18.2.4.2 of the Nigerian Civil Aviation Regulation (Nig. CARs) 2015; respectively.

The aerodrome requires adequate lightings for manoeuvres, approach and landing during the operational hours. However, the 3 approaches attempted were outside the operational hours.

The analysis concentrates on crew qualification and competency, crew actions during (cruise, approach and crash landing) phases of the flight and human factors (active and latent) involved in the occurrence.

2.2 Crew Qualification, Aircraft Handling and Competency

The Pilot was licenced, certified and appropriately type-rated as Part 2 on the Bell 429 helicopter, which confers the privileges of Second in Command on the Pilot. However, the pilot was not eligible to conduct that flight exercising the privileges and authorities



of the Pilot In Command (PIC). except he is appropriately type rated on Bell 429 helicopter, per subsections 2.3.1.3 – (a), (b), and (c), 2.3.2.1 – (a)(3) and (b), and 8.14.9.4 of the Nig. CARs 2015; respectively. Therefore, the investigation determined that the pilot was not qualified and not competent to operate the flight as the PIC, having not met the requirements stipulated in the relevant sections of Nigerian Civil Aviation Regulations (Nig.CARs) 2015.

The Co-pilot was certified, licenced, qualified and competent to fly as either PIC or Co-pilot, having met the requirement stipulated in the relevant sections of Nigerian Civil Aviation Regulations (Nig.CARs) 2015, as mentioned above. Therefore, the co-pilot's qualifications and competency were appropriate.

2.2.1 Crew Actions during Cruise, Approach and Landing

The accident flight was scheduled to operate on a Visual Flight Rules (VFR); hence, a VFR flight plan was filed. According to the ATC transcript, the flight's Estimated Arrival time (ETA) was 16:30 h. This was corroborated by the flight plan as filed. The flight's actual arrival time was 19:36 h, which happened to be at night at the intended destination (DNBC).

There was effective communication between 5N-MDA and ATC (DNAA), especially before start-up clearance was issued and after departure when 5N-MDA passed its estimated time of arrival (ETA) at destination (DNBC) as 16:30z (also filed in VFR flight plan), which was unauthentic and unrealistic, because 5N-MDA requested for engine start at 16:45z and lifted up at 16:54z. The ETA could have significantly assisted in averting the accident, should the ATC clarify the authenticity and reality of the ETA (16:30z) for a helicopter that lifted up at 16:54z, that was 24 minutes after the ETA at the destination. This would have further alerted the ATC to confirm if NPAW's operations unit has made an arrangement for extending the operational hours of the destination aerodrome; if it was found out that it was not done, the ATC could advise NPAW to do that appropriately. By so doing, DNBC would have been open and waiting



for 5N-MDA's arrival with the provision of adequate assistance (communications, approach, landing aids and other facilities) for safe landing at DNBC.

2.2.2 Cruise phase

At 18:40 h, 5N-MDA was in cruise, maintaining 5000 ft, while abeam Jos Airport (DNJO). 5N-MDA tried to establish two-way communication with Jos Tower, but it was not successful. At that position, 5N-MDA could have attempted to return to base (DNAA).

At 18:46 h, while 5N-MDA was abeam DNJO and trying to get in contact with DNBC Tower without response and considering there was only 14 minutes left for closure of DNBC, VFR flight back to DNAA wouldn't have been possible and therefore landing at DNJO would have been the best option per the provisions of subsections 8.8.3.9 – (a)(1), (2) and (3) of Nigerian Civil Aviation Regulations (Nig. CARs) 2015. However, the crew could have also amended their flight plan to transition to Instrument Flight Rules (IFR) to enable them to return to DNAA. Instead, 5N-MDA decided to continue with the flight to the intended destination.

2.2.3 Approach phase at a closed airfield at night

During the approach for landing runway 35 DNBC, the crew decided to use the Global Positioning System (GPS) to track the centreline of the runway, thereby attempting three approaches with no prior communication with DNBC Tower and without having a positive visual of the runway.

On the first attempt, 5N-MDA came over the runway, and the Pilot Monitoring (PM) reported having visual contact with the runway centreline. The PM lost visual contact with the centreline due to darkness while trying to hover to land and, therefore, called for a Go-Around. The go-around was executed, and 5N-MDA was prepared for the second attempt.



Subsequently, a second attempt was made, which was also unsuccessful due to the lack of airfield and runway lighting, which made it impossible for the crew to see the runway centreline.

2.2.4 Crash Landing phase/crew action

On the third landing attempt, the crew used a Global Positioning System (GPS) reference to align and track the runway centreline.

In the course of conducting missed approaches the crew did not appropriately brief in-between approaches nor was the aircraft prepared for the approach intended. Particularly during the transition from Visual Approach to GPS Approach, the preparation of the aircraft was conducted only a few miles to touchdown thus making it impossible for the PM to look out for obstacles on the approach path of the runway.

Also, shooting an IFR approach at night was inappropriate for a VFR flight.

At about 2.1 nm to the runway threshold, the crew opted for GPS guidance without airfield and runway lightings in reduced visibility at night. The PM suddenly saw an obstacle and called for a missed approach. At that point, it was too late for the PF to discontinue the approach and execute a missed approach. The main rotor blade impacted the top of a tree, resulting in the tail rotor blades cutting the tree trunk.

2.3 Active failures observed in the occurrence

Available information revealed that there was no adequate communication between the Nigeria Police Air Wing (NPAW)'s crew of the accident flight and its Operation's Unit.

The NPAW's inability to file for an extension of operational hours at DNBC and DNAA Air Traffic Control (ATC) 's non-confirmation that an extension had been granted for 5N-MDA were factors that significantly degraded the crew's situational awareness.



5N-MDA

The flight crew was aware of the nighttime but unsure about the airfield's operational hours. They were also aware that another helicopter, which 5N-MDA was supposed to have supplemented its activities at Maiduguri, had landed and departed earlier. The crew also knew they needed airfield and runway centreline lighting to aid them in landing.

It was apparent that the crew did not consider that the VFR condition would transform to IFR, DNBC would be closed for operations, and the area would be completely dark upon their arrival. Consequently, they did not identify appropriate options to deal with such situations. This was due to inadequate operational procedures, proper coordination, and communication between the flight crew and NPAW's Flight Operations Unit.



3.0 CONCLUSIONS

3.1 Findings

1. 5N-MDA had a valid Certificate of Airworthiness at the time of the occurrence.
2. There was no load sheet document in the flight dispatch folder.
3. Bell 429 was not included in the NPAW Approved Maintenance Organisation (AMO).
4. NPAW does not have approved operations specifications (OPSPECS).
5. 5N-MDA lifted off at 17:54 h from Nnamdi Azikiwe International Airport (DNAA) Abuja on a Visual Flight Rules (VFR) flight plan.
6. The crew could not establish contact with DNJO Tower and the flight continued.
7. The crew could not establish two-way radio communication with DNBC Tower until after the crash.
8. BCH' VOR/DME BCEP 115.6 MHZ was unserviceable on the day of the occurrence.
9. Sir Abubakar Tafawa Balewa Airport (DNBC) Bauchi was closed at the time of arrival of 5N-MDA.
10. On the first attempt to land, the crew initially had visual contact with the runway centreline but lost it afterwards due to darkness.
11. The crew executed two Go-Around and 5N-MDA crashed on the third landing attempt.
12. The 5N-MDA main rotor blade impacted the top of a tree, which caused the tail rotor blades to cut the tree trunk.



13. The helicopter Tail Boom sheared off during the third landing attempt.
14. At the time of arrival of 5N-MDA, Bauchi airport was closed.
15. The Permit for Non-Commercial Flight (PNCF) issued to the Nigeria Police Air Wing (NPAW) expired in September 2017 and was not reissued or renewed.
16. The Pilot Flying (PF) was licenced, certified, and appropriately type-rated as Part 2 on a B429 helicopter.
17. The crew of 5N-MDA did not amend their flight plan to transition to Instrument Flight Rules (IFR), which would have enabled them to return to DNAA.
18. Nigeria Civil Aviation Authority (NCAA) insufficient surveillance of NPAW's flight operations concerning the adherence to meeting permits for non-commercial operations and crew qualification/competency requirements.
19. Investigation observed that the NCAA oversight of NPAW was inadequate
20. NPAW did not file for an extension of operational hours at DNBC.
21. DNAA Air Traffic Control (ATC) did not confirm if an extension had been granted for 5N-MDA.
22. Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) were not installed on 5N-MDA as required.
23. The investigation identified that NPAW had only one dispatcher.
24. NPAW had no means of communication and monitoring equipment for the dispatch unit to track flights.
25. The investigation identified that NPAW does not usually involve the dispatch in flight preparation.



5N-MDA

3.2 Causal factor

The decision to operate the flight outside the operation hours of Bauchi Airport after sunset.

3.3 Contributory factors

4. Nigeria Civil Aviation Authority (NCAA) safety oversight on NPAW was inadequate
5. The decision to embark on the flight without adequate dispatch preparation
6. The inability of Abuja ATC to advise the 5N-MDA crew accordingly before departure



4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2024-027

Nigeria Civil Aviation Authority (NCAA) should ensure that the Nigerian Police Air Wing (NPAW) adheres strictly to the provisions of the Nigerian Civil Aviation Regulations (Nig. CARs 2015) subpart 8.6 on Flight Planning and Supervision.

4.2 Safety Recommendation 2024-028

Nigeria Civil Aviation Authority (NCAA) should ensure that the Nigerian Police Air Wing (NPAW) ensures its flight crew takes cognisance of and adheres strictly to the operating hours of the destination and alternate airfields before flights commence.

4.3 Safety Recommendation 2024-029

Nigerian Police Air Wing (NPAW) should ensure its flight crews are cognizant of and adhere strictly to the operating hours of destination and alternate airfields before flights commence.

4.4 Safety Recommendation 2024-030

Nigeria Civil Aviation Authority (NCAA) should ensure that Nigerian Airspace Management Agency always verifies that all VFR flights arrive at their destinations within the operational duty hours of the destination airport per the Nigeria Civil Aviation Regulations (Nig. CARs 2015).

4.5 Safety Recommendation 2022-031

Nigeria Civil Aviation Authority (NCAA) should ensure that the PMI/POI attached to NPAW increase their oversight functions on the Air Wing in matters relating to PNCF renewal and all other safety-related issues per Nig.CARs.