AIRCRAFT ACCIDENT REPORT

OAS/2011/07/29/F

Accident Investigation Bureau

Report on the Accident involving OAS Helicopters (Nig.)Limited Ecuruiel A 350 B2 Helicopter with Registration 5N-BKA at Oke-Oba Hill, Ikonifin, Osun State, Nigeria On 29th July, 2011

Published by Accident Investigation Bureau, of Nigeria

This Report is produced by the Accident Investigation Bureau (AIB), Murtala Muhammed International Airport, Ikeja, Lagos.

The Report is based on the investigation carried out by Accident Investigation Bureau, in accordance with Annex 13 to the Convention on International Civil Aviation, Nigerian Civil Aviation Act 2006 and Civil Aviation (Investigation of Air Accidents and Incidents) Regulations.
It is not the purpose of aircraft accident/serious incident investigations to apportion blame or liability.

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As the Bureau believes that safety information is of great value if it is passed on for the use of others, readers are encouraged to copy or reprint for further distribution, acknowledging Accident Investigation Bureau, Nigeria as the source.

Recommendations in this report are addressed to the regulatory Authorities of the state (NCAA). It is for this authority to ensure enforcement.

Printed in Nigeria for the Accident Investigation Bureau (AIB)

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GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT

ACC	Area Control Centre
AIB	Accident Investigation Bureau
AIP	Aeronautical Information Publication
AMO	Approved Maintenance Organization
AOC	Air Operator Certificate
ATC	Air Traffic Controller
ATPL (H)	Airline Transport Pilot Licence Helicopter
CFIT	Control Flight into Terrain
CPL (H)	Commercial Pilot Licence Helicopter
ETA	Estimated Time of Arrival
GPS	Global Positioning System
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rule
IR	Instrument Rating
NAMA	Nigeria Airspace Management Agency
NCAA	Nigerian Civil Aviation Authority
NDLA	National Drug Law Enforcement Agency
NEMA	National Emergency Management Agency
Nig.CAR	Nigerian Civil Aviation Regulation
NIMET	Nigerian Meteorological Agency
NM	Nautical Miles

OAS	Odengene Air Shuttle services
PMI	Principal Maintenance Inspector (NCAA)
PIC	Pilot-in- Command
QNH	Altimeter Setting That Causes Altimeter To Indicate Altitude Above Sea Level
SOP	Standard Operating Procedure
TRE	Type Rated Examiner
UTC	Universal Time Coordinated
VMC	Visual Meteorological Condition

LIST OF FIGURES

Aircraft Accident Report No:	OAS 2011/07/29/F
Registered Owner Operator:	OAS Helicopter Limited
Aircraft Type and Model:	Ecureuil A 350 B2 Helicopter
Nationality:	Nigerian
Registration:	5N-BKA
Location:	Oke-Oba Hill, Ikonifin
Date and Time:	29th July 2011 at 1000hrs *(All the times in this report are local time, equivalent to UTC+1 unless otherwise stated)*

SYNOPSIS

Accident Investigation Bureau was notified of the accident in the evening of 29th July 2011. Investigators were dispatched to the crash site the following morning. The international stake holders were notified of the accident, but no accredited representative participated in the investigation.

5N-BKA departed OAS helipad Maryland, Lagos at 0925hrs for Ilorin and had its initial contact with Ibadan at 0939hrs. The Pilot checked abeam Ibadan (west) at 0950hrs and requested to climb to 1,500ft on QNH 1014hPa, which was granted.

At 1001hrs, Ibadan Control Tower called the pilot to confirm if he had two-way contact with Ilorin Control Tower. There was no reply from the aircraft.

The Controller reported to the Airspace Manager that somebody called the Airport Fire Service that she heard a 'bang' somewhere around Ife Odan. The caller confirmed the bang and the likelihood of an accident when she was called back, consequent upon which the Air Space Manager directed the Controller to get in

touch with Ilorin, Lagos and other neighboring states and subsequently initiated a search and rescue operation.

The wreckage was later sighted at about 2250hrs same day at Ikonifin near Ife-Odan in a hilly terrain between Iwo and Ogbomoso. The accident occurred at about 1000hrs in daylight with 3 fatalities. The damage on both the main and the tail Rotor blades was consistent with engine on power.

The investigation identified the following,

Causal Factor:

The non-adherence of the Pilot to Visual Flight Rules of clear-of cloud and obstacles while maintaining ground contact at all times led to Controlled Flight into Terrain (CFIT).

Contributory Factors:

i. The Pilot was not Instrument Rated.

ii. The pilot's lack of route familiarization.

Five safety recommendations have been made.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

5N-BKA departed OAS helipad Maryland, Lagos at 0925hrs for Ilorin and had its initial contact with Ibadan at 0939hrs. The Pilot checked abeam Ibadan (west) at 0950hrs and requested to climb to 1500ft on QNH 1014hPa which was granted. The Pilot again asked the Controller to confirm Ilorin tower frequency if it was 119.6MHz to which the Controller responded in the affirmative and also added the approach frequency of 118.9MHz at 0955hrs.

At 1001hrs, the Control Tower called the pilot to confirm if he had two-way contact with Ilorin Control Tower. There was no reply from the aircraft.

There was no evidence that the Controller made any other effort after 1001hrs to contact the aircraft, until the Controller reported to the Airspace Manager that somebody called the Airport Fire Service that she heard a 'bang' somewhere around Ife-Odan. The caller confirmed the bang and the likelihood of an accident, when she was called back, consequent upon which the Airspace Manager directed the Controller to get in touch with Ilorin, Lagos and other neighboring states and subsequently initiated a search and rescue operation. The search and rescue team from Ibadan was able to locate the wreckage of the helicopter at Ikonifin near Ife-Odan in a hilly terrain between Iwo and Ogbomoso later that night at about 2250 hrs. The damage on both the main and the tail Rotor blades was consistent with engine on power.

The accident occurred at about 1000hrs in daylight with 3 fatalities.

1.2 Injuries to Persons

INJURIES	CREW	PASSENGERS	OTHERS
FATAL	1	2	Nil
SERIOUS	Nil	Nil	Nil
MINOR/NONE	Nil	Nil	Nil

1.3 Damage to Aircraft

The aircraft was destroyed as a result of impact with the hilly terrain of Oke-Oba.

1.4 Other Damage

The accident occurred in a wooded forest with no other visible damage except trees with broken branches.

1.5 Personnel Information

1.5.1 Pilot

Nationality:	Filipino
Gender:	Male
Age:	47years
Licence:	CPL 95CH89 (Philippines)
Aircraft rating:	AS 350, AS 355, Bell 407
Instrument Rating:	Nil
Proficiency Check:	28/02/11
Medical Expiry:	19/08/11
Total flying Experience:	4950hrs
On type:	526.5hrs
Last 90 days:	136hrs
Last 28 days:	28.7hrs
Last 24 hrs	1.0hrs

The pilot had no operational experience into Ilorin except Offa. From the evidence available to AIB, the pilot had neither been to Ilorin nor had a route check to Ilorin, which is a requirement of Nigeria Civil Aviation Regulations (Nig.CARs 8.10.1.30). He was not Instrument rated and his simulator expired on the 15th of July 2011. The pilot was issued with Certificate of Validation that would expire on the 19th August, 2011.

1.5.2 Engineer

Nationality:	Malawian
Age:	41years
Licence:	2995 A & C
Ratings:	AS 355F/F2; AS 350BI/LI
Validity:	24th June, 2012

He was the engineer that released the aircraft to service on the accident day. He had been with the company for about 2yrs and 11 months before the accident. He got his endorsement in 2005 (almost 12yrs), his license showed that he was experienced on the accident aircraft.

1.5.3 Flight Dispatcher

Nationality:	Nigerian
Age:	48 yrs
Licence:	158 (Dispatcher)
Ratings:	Dispatcher
Validity:	31st December, 2011

This was the Dispatcher who dispatched the accident aircraft. He was duly licensed by NCAA. He said he filed an initial altitude of 1,500ft even though Jespersen stipulates that the minimum en-route altitude for the route is 3,500ft

1.6 Aircraft Information

Aircraft Type:	Ecureuil AS 350 B2
Year of Manufacture:	2005
Manufacturer:	Eurocopter
Serial Number:	3994
Total Airframe time:	2,876:22hrs
Certificate of Airworthiness	
Validity:	2nd May, 2012
Category:	Transport (Passenger)
Certificate of Registration:	27th September 2007

1.6.1 Engine Type/Model:	Arriel 1D1
Manufacturer:	Turbomeca
Total Time	5048.91
Cycles:	5188
Serial No	19017

The installed GPS and hand-held GPS were the only equipment missing from the aircraft; all other equipments were found in their various positions on the instrument panel. There was evidence of looting at the crash site since the accident occurred in the morning and the wreckage was only discovered later in the night. The aircraft cargo compartment was forced open and the valuable contents were missing/stolen.

Type of Fuel	Jet A1

1.7 Meteorological Information

Time:	**0800 UTC**	**0900 UTC**
Wind	260/03	250/03
Weather	Nil	Nil
Cloud	Bkn 330	BKn 360
Temp/Dew.	23/22°C	24/21°C
QNH	1014	1015
Visibility	8km	10km

The prevailing weather condition around the hill-top was foggy and the hill was concealed by the fog.

1.8 Aids to Navigation

The destination airport was Ilorin Airport; VOR is serviceable at the time of the accident.

1.9 Communications

There was good communication between the aircraft, Lagos and Ibadan Towers before the aircraft lost contact with Ibadan.

1.10 Aerodrome Information

The airport is located in Ilorin the Kwara State Capital. The airport is an International airport with VOR/DME 112.3MHz and NDB 391 installed as landing aids. The runway length is 10,171ft or 3100m long; the width of the runway is 197ft with an airport elevation of 1,126ft and runway headings of 05/23.

1.11 Flight Recorders

The Helicopter was not installed with either cockpit voice recorder or flight data recorder.

1.12 Wreckage and Impact Information

The aircraft crashed into a wooded un-inhabited forest in Oba-nla hill. Its first point of impact was with a very tall tree in the wooded forest. The wreckage of the Helicopter was concentrated in a small area, apart from the main rotor assembly and the Landing skid that detached during the accident. These items were found within the immediate vicinity of the main wreckage. See figures 1.12a-c.

Figure 1.12a Main Wreckage

Figure 1.12b Main Rotor

Figure 1.12c Tail Rotor Assembly

1.13 Medical and Pathological Information

The victims of the crash were removed from the crash site the next day. Toxicology test was not performed on the pilot because of the delay in locating the accident site and body retrieval. There was no difficulty identifying the bodies.

1.14 Fire

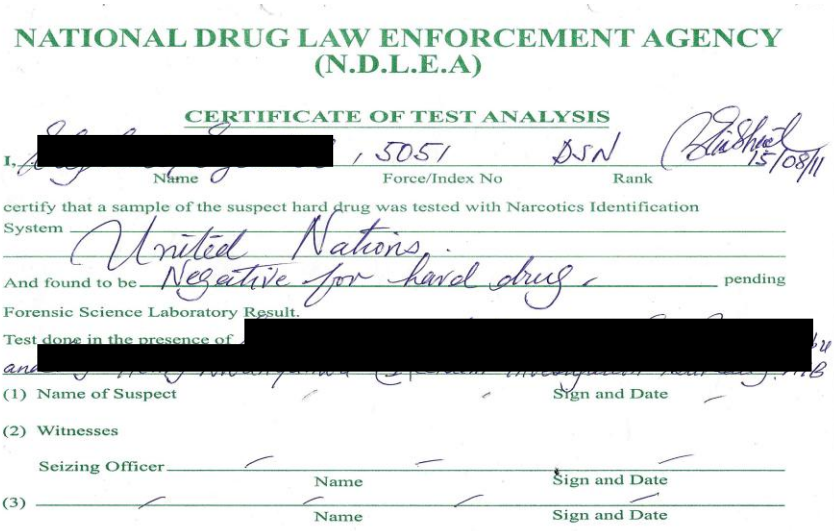
There was no fire outbreak.

1.15 Survival Aspects

There was a liveable volume. However, help did not reach the victims till late in the night. The impact from the point of contact with the tree and subsequently with the ground did the damage to the aircraft, pilot and passengers.

1.16 Tests and Research

The only test performed was on a powdery substance found in the pilot's bag, which was sent to N.D.L.E.A for analysis. The test came out negative, confirming that it wasn't a prohibited substance. See Figure 1.16 below.



NATIONAL DRUG LAW ENFORCEMENT AGENCY
(N.D.L.E.A)

CERTIFICATE OF TEST ANALYSIS

I, [redacted], 5051 DSN 15/08/11
Name Force/Index No Rank

certify that a sample of the suspect hard drug was tested with Narcotics Identification System United Nations.

And found to be Negative for hard drug. pending

Forensic Science Laboratory Result.

Test done in the presence of [redacted]

(1) Name of Suspect Sign and Date

(2) Witnesses

Seizing Officer
Name Sign and Date

(3)
Name Sign and Date

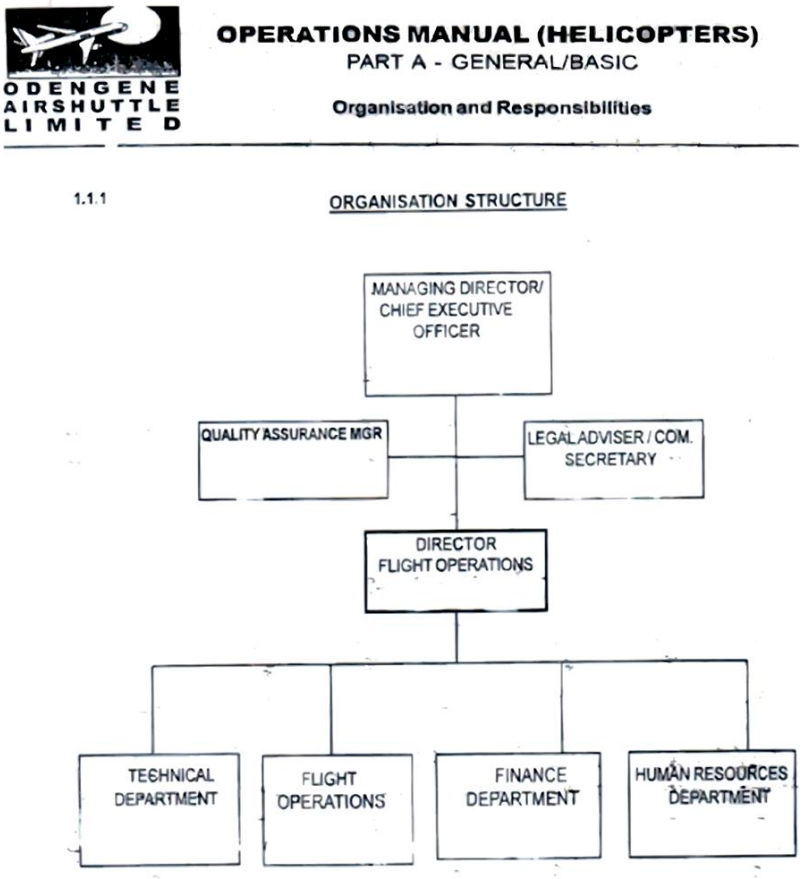
Figure 1.16 NDLEA Test

1.17 Organizational and Management Information

1.17.1 General

Odengene Air Shuttle Services Limited (OAS Helicopters) is a small growing company performing (charter, passenger, cargo and aerial work) commercial air transport operation under the Nigerian Civil Aviation Regulations.

1.17.1.2 Organization Structure



The investigation revealed contradictions in the Company Operations Manual, Nig. CARs, and the relief granted the Operator in the Operations Specification (Ops. Spec.) For instance, instrument rating for single crew helicopter operations was not required in the company's Ops Spec but was stipulated both in the Operations Manual and Nig.CARs. The route familiarization was not carried out by the airline in line with its operations manual and Nig.CARs; the dispatcher did not follow the aircraft through from departure to destination.

Managing Director/CEO

Responsible for ensuring that the operations and maintenance carried out by the organisation meet the requirement by ICAO and NCAA. He is to ensure that the necessary finance, manpower resources and facilities are available to enable the company to perform its scheduled and ad-hoc commitments and that there is prudent financial management of the airline's resources. He, being the Accountable Manager in terms of the company Quality System for overall control of quality standard and maintenance of those standards to satisfy operational and maintenance requirements. He is to ensure at all times the safe conduct of public transport operations.

Director of Flight Operations

He or She is responsible to the Managing Director for the overall operations and development of Odengene Air Shuttle Services Limited. He shall be a lead point of contact for any outside agency or organization. He shall be the chairperson of the Senior Management Committee. He shall be an active pilot who has ATPL (H), IR ratings and other criteria expected of flight crew.

1.17.1.3 Flight Crew

Odengene Air Shuttle Services Limited Flight Crew members are the backbone of the organization. Flight Crew members are required to be active pilots and shall have minimum qualification of CPL (H) and IR ratings. Flight Crew members are encouraged to complete additional qualification courses as they advance in experience.

1.17.1.4 Dispatcher/Flight Operations

Dispatcher/Flight Operations of Odengene Air Shuttle Services Limited shall keep pilots aware of weather conditions at pilot's point of departure, enroute and destination (airport, heliports etc). The Dispatcher shall also be the point of contact with keeping pilots up to date with all NOTAMS that the pilots need to be aware of while flying. The Dispatcher shall have dispatcher's license issued by NCAA.

1.17.1.5 Training Requirements

All flight crew members shall be scheduled for proficiency checks twice a year on the aircraft type and shall be conducted by designated Type Rating Examiner TRE. Odengene Air Shuttle Services Limited is still processing the approval of designated TRE with NCAA.

1.17.1.6 Radio Communication

Flight Crew members of Odengene Air Shuttle Services Limited are expected to be in contact with Air Traffic Control anytime they are in controlled airspace regardless of mission type, utilizing voice communications. Flight altitudes should be such that gives room for continuous radio contact to a station (tower, radar, approach) at all times.

1.17.1.7 Flight Planning

The Pilot-in-command is responsible for flight planning. The PIC will thoroughly review the trip manifest prepared by Flight Dispatcher and shall confirm the number of passengers on each leg of flight so that proper fuel planning can be accomplished. It is the responsibility of PIC to determine the latest status of destination heliports. The Flight Dispatcher will make every possible effort to determine heliport condition before the flight and relay appropriate information to the crew. Destination Heliport condition shall be confirmed by the PIC at least

thirty (30) minutes prior to arrival with a call to the destination heliport or controlling authority for the latest advisories. Note that fuel (Jet A1) is not available at all Nigerian Airports. Availability should be confirmed before any flight.

1.17.1.8 Visual Flight Operations

The rules and minima listed below are Odengene Air Shuttle Services Limited operational policies. They reflect current industry thinking on safety margins and appropriate flight standards. While operating aircraft for Odengene Air Shuttle Services Limited, these rules are to be used for all aspects of flight planning and operations.

1.17.1.9 Visual Flight Rules

General Requirements:

1. Flight crew member shall have been examined at the initial Probationary Pilot Check level and found to have mastered the fundamentals of day VFR operations.
2. Valid VFR flight plan filed for flight.
3. Aircraft, except for departure or landing, must be operated at a minimum of one (1) nautical mile horizontally from obstruction.
4. Aircraft, except for departure or landing, must be operated at least 500ft above ground level in built up areas.
5. In areas with approved helicopter routes flights should be planned to make maximal use of those routes.
6. In areas with active ATC, pilots will remain in contact with the air traffic controller while in controlled airspace.
7. VFR rated pilots shall use all available sources of navigational information but are specifically cautioned and reminded that the presence of a GPS in the aircraft does not allow flight into instrument meteorological conditions without having instrument Ratings.

1.17.1.10 Weather Requirements

1. *Ceilings of at least 1000ft for day operations.*

2. *Horizontal visibility greater than three (3) nautical miles for day operations.*

3. *Weather forecast for local operating area does not show significant weather events.*

4. *Departure and destination are forecast to remain VMC for the duration of flight operation.*

5. *Departure and destination must allow aircraft to approach and depart with no tailwind component on final approach and no greater than a forty (40) mph crosswind component during final approach.*

1.17.1.11 Single-Pilot Crew

A single-pilot crew may be employed on IFR operations only in helicopters with a maximum approved seating configuration of nine passengers or less, provided that:

(a) *the pilot has been specifically trained in the single-crew role, with particular reference to cockpit management;*

(b) *all current proficiency checks have been conducted in the single-crew role on the subject helicopter type;*

(c) *the pilot must have the following minimum qualifications and experience prior to employment on an existing operation, or on an operation planned to take place in an environment similar to where item (v) experience has been accrued;*

(i) *a valid ATPL (H);*

(ii) *at least 700 hours flight time on helicopters;*

(iii) *at least 300 hours flight time as pilot-in-command. This 300 hours as pilot-in-command may be substituted by co-pilot hours on a 2 for 1 basis provided those hours were gained within an established two pilot crew concept system described in this Operations Manual;*

(iv) *at least 100 hours flight experience on helicopters flying by sole reference to instruments;*

(v) *25 hours total IFR flight experience in the relevant operating environment;*

(vi) *25 hours flight experience on the specific type of helicopter, approved for single pilot IFR, of which 10 hours is as commander or commander under supervision, including 5 sectors of IFR line flying under supervision using single pilot procedures; and*

(vii) *At least 5 IFR flights, including 3 instrument approaches, carried out in the preceding 90 days on the helicopter type in the single-pilot role. This requirement may be replaced by an IFR instrument approach check on the helicopter type;*

(d) *helicopter equipment includes a serviceable, certificated autopilot with at least altitude hold and heading mode; a headset and boom microphone with control-column transmit button, and a conveniently-placed illuminated chart holder.*

VFR Operations

For operations with helicopters with a maximum approved passenger seating configuration of more than 19 passengers:

(a) *the minimum flight crew shall be two qualified pilots; and*

(b) *the commander shall hold a valid ATPL (H).*

1.17.2 Nigerian Civil Aviation Authority (NCAA)

1.17.2.1 Nigeria Civil Aviation Regulations (Nig.CARs) 8.4.1.6

(a) *No person may act as pilot of a civil aircraft under IFR or in weather conditions less than the minimums prescribed for VFR flight unless-*

(1) *The pilot holds an instrument rating or an ATP licence with an appropriate aircraft category, class, and type (if required) rating for the aircraft being flown;*

(2) *In case of helicopter, the pilot holds a helicopter instrument rating*

1.17.2.2 (a) General requirements for Validation (of Flight Crew Licence) Nig.CARs 2.2.4.1

(1) *A person who holds a current and valid pilot licence issued by another Contracting State in accordance with ICAO Annex 1, may apply for a validation of such licence for use on aircraft registered in Nigeria.*

(5) *The Authority will verify the authenticity of the licence, ratings authorisations and the medical certificate with the state of licence issue prior to issuing the validation.*

Comply with the experience requirement set out below:

Licence	***Experience***	***Validation privileges***
CPL(H)/IR	*>1000 hrs as PIC in commercial air transport since gaining an IR*	*Commercial air transport in single-pilot helicopters as PIC*

1.17.2.3 Nig.CARs 8.12.1.7 (a) *No person may release an aircraft over any route or route segment unless there are adequate communications and navigational facilities in satisfactory operating condition as necessary to conduct the flight safely.*

(b) *The flight dispatcher shall ensure that the PIC is provided all available current reports or information on aerodrome conditions and irregularities of navigation facilities that may affect the safety of the flight.*

(c) *For his or her review of the operational flight plan, the PIC shall be provided with all NOTAMs with respect to the routing, facilities and aerodromes.*

Nig.CAR 8.12.1.8. -- (a) *No person may release a flight unless he or she is thoroughly familiar with reported and forecast weather conditions on the route to be flown.*

(b) *No person may release a flight unless he or she has communicated all information and reservations they may have regarding weather reports and forecasts to the PIC.*

Nig.CAR 8.10.1.30.-- (a) *No person may serve nor may any AOC holder use a person as a pilot unless, within the preceding 12 calendar-months, that person has passed a route check in which he or she satisfactorily performed his or her assigned duties in one of the types of aero planes he or she is to fly.*

(b) *No person may perform PIC duties over a designated special operational area that requires a special navigation system or procedures or ETOPS operations unless his or her competency with the system and procedures has been demonstrated to the AOC holder within the past 12 calendar months.*

(c) *Each PIC shall demonstrate operational competency by navigation over the route or area to be flown and the aerodromes to be used as PIC under the supervision of a check airman and, on a continuing basis, by flights performing PIC duties. This, at a minimum, shall include a PIC demonstration of knowledge in the following:*

(1) *The terrain and minimum safe altitudes.*

(2) *The seasonal meteorological conditions.*

(3) *The search and rescue procedures.*

(4) *The navigational facilities and procedures, including any long-range navigation procedures, associated with the route along which the flight is to take place.*

(5) *Procedures applicable to—*

- ***(i)*** *Flight paths over heavily populated areas or high air traffic density;*
- ***(ii)*** *Obstructions;*
- ***(iii)*** *Physical layout;*
- ***(iv)*** *Lighting, approach aids;*
- ***(v)*** *Arrival, departure, holding and instrument approach procedures; and;*
- ***(vi)*** *Applicable operating minima;*
- ***(vii)*** *Notices to airmen.*

Nig.CARs 8.10.1.33.-- (a) *No person may serve nor may any AOC holder use a person as a flight crewmember unless within the preceding 12 calendar-months that person has completed the recurrent ground and flight training curricula approved by the Authority. See* ***IS: 8.10.1.33 for detailed curriculum.***

1.17.3 Nigerian Airspace Management Agency (NAMA)

Air Traffic Controllers provide pilots with some level of assistance to enhance safety and smooth operations. The ATC advice pilots on weather, routes, obstacles, to check landing gears if extended, runway in use, wet runways etc.

The ATC cleared the aircraft to fly 1000ft from Lagos en-route Ilorin. NAMA is the organization mandated to produce area charts; however NCAA approves Jeppesen charts for operational use for all operators.

1.17.4 National Emergency Management Agency (NEMA)

NEMA personnel were seen at the crash site early morning of 30th July, 2011 in company of some Police Men and Civil Defence personnel, trying to recover the remains of the pilot and the two passengers. Not much of NEMA activities were known to AIB or the part they played in locating the crash site.

1.17.5 Security Agencies

The Nigeria Police as part of first responders is expected to hold brief for AIB prior to arrival of the investigators; as it relates to security of the site, crowd control, protection and preservation of evidences. The Police are also expected to cooperate, support and recognize the primacy of the Bureau in any accident site.

The Nigerian Civil Defence Corps is to assist in the maintenance of peace and order and in the protection and rescuing of the civil population during the period of emergency.

The Police, Federal Road Safety Corps and the Civil Defence were at the site for the recovery of bodies. The Police did not secure or cordon-off accident sites the night the aircraft was located.

1.18 Additional Information

- During the interview with one of the OAS pilots who claimed not to have instrument rating but on a closer look at his licence he had an endorsement indicating that he was instrument rated.

- There was inconsistency in the pilot hour's collation.

- Pilot workload on AS 350 B2 Helicopter normally increases without the use of auto pilot.
- There was evidence that the filed altitude on the flight plan was 1500ft.
- The Flight Dispatcher is licenced and qualified.
- Jeppesen Chart showed a minimum safe altitude of between 3100 & 3500ft from Lagos to Ilorin. See Figure 1.18 below.
- The map found in the helicopter was neither Jeppesen chart nor any known navigational chart.
- The NCAA's Operations Specification granted the operator an exemption from Part 7.1 and 7.2 of the Nig.CARs.
- Eyewitness account on the day of the accident stated that it was a foggy morning, as it is usually the case at the hill tops, this time of the year. This was also confirmed by the investigators sent to the crash site.
- A woman made a call to the Ibadan airport Fire Service that she "heard a loud noise around Ife-Odan on Iwo road to Ogbomoso that she suspects it was an aircraft that must have crashed".
- There was looting at the crash site, which included passengers personal effects, the aircraft installed GPS and the hand held GPS. The crash occurred about 1000hrs and the site was located at 2250hrs.

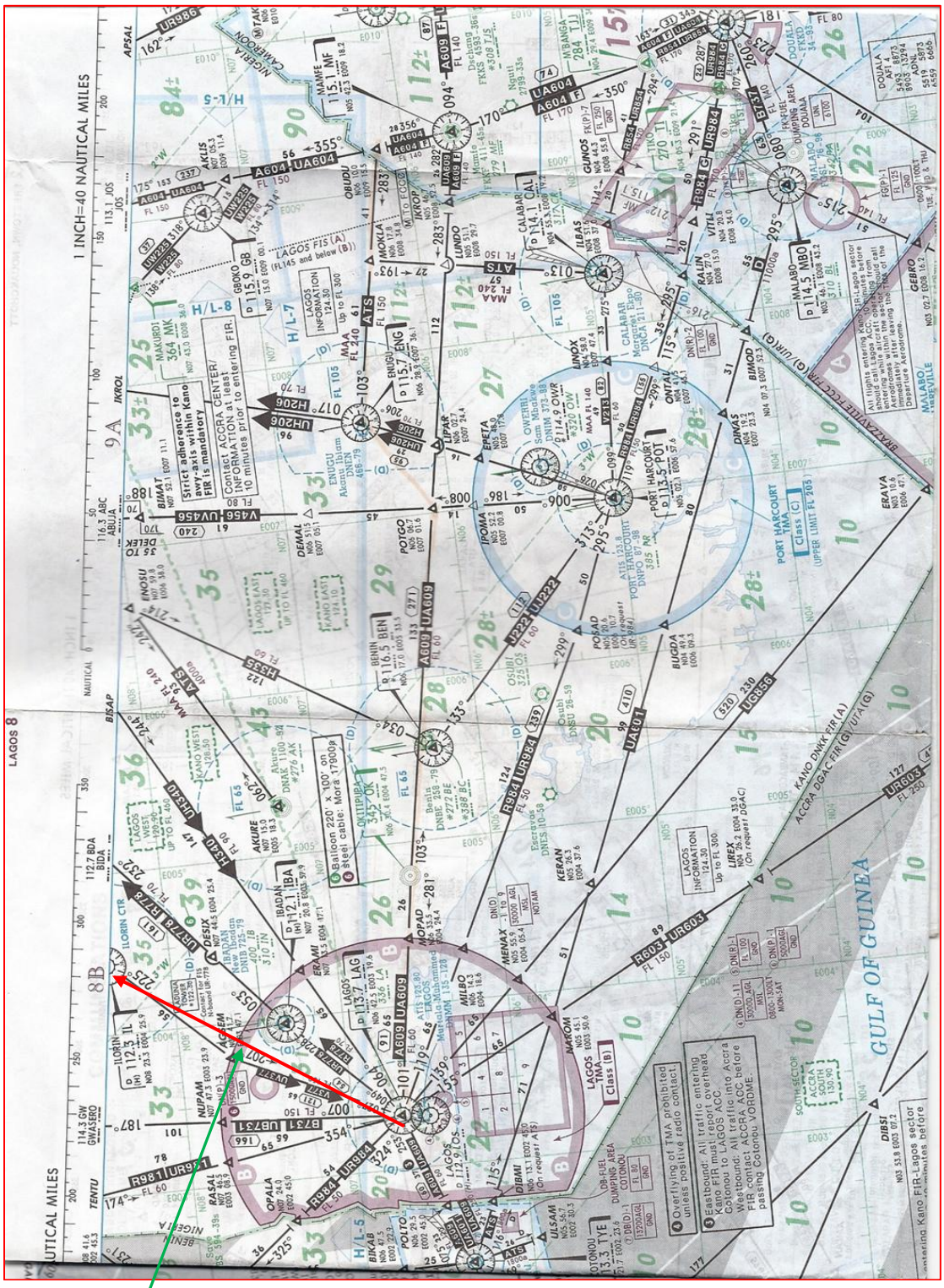


Figure 1.18 JEPPESEN CHART

1.19 Useful or Effective Investigation Techniques

Nil.

2.0 ANALYSIS

2.1 Operator

The Operator clearly outlined operational policy in their Standard Operating Procedure (SOP), which included the Flight Crew minimum qualification of CPL (H) with Instrument Rating (IR). However, the pilot of the accident aircraft did not possess IR. This is also the main reason why pilots in this category will always want to maintain ground contact at all times. The pilot was flying from Lagos to Ilorin, which has a very high terrain of 2010 feet en-route.

While abeam Ibadan, the pilot requested to climb to 1500ft, when the highest point en-route was higher than 1500ft. The reasons the pilot chose to fly that low was due to the company policies of maintaining visual contact with the ground and remain clear of clouds. Unfortunately, the prevailing weather condition at the time of the crash was foggy around the hill. From records available to AIB, it was observed that the required route familiarisation flight was not performed by the accident pilot. Eye-witness account "Baale of Ikonifin" who stated that during this time of the year the hill-top is usually foggy in the morning, until the sun rises when the fog clears.

The route familiarisation is an NCAA requirement. OAS has some useful policies that would have helped the pilot, "*Aircraft, except for departure or landing, must be operated at a minimum of one (1) nautical mile horizontally from obstruction." VFR rated pilots shall use all available sources of navigational information but are specifically cautioned and reminded that the presence of a GPS in the aircraft does not allow flight into instrument meteorological conditions without having instrument Ratings. "*

In case when weather exists, the OAS weather requirement outlined thus -
"*Horizontal visibility greater than three (3) nautical miles for day operations."*

OAS flight dispatcher did not contact or confirm the arrival of the accident flight at destination until after 1500hrs. According to evidence available to AIB, at about 1500hrs, a woman made a call to the Ibadan Airport Fire Service that she heard a 'bang' around Ife-Odan on Iwo road to Ogbomoso. This information was passed to Ibadan Control Tower through the ASM, who put a call back to the caller. The caller confirmed the bang after which the Airspace Manager directed the Controller to get in touch with Ilorin, Lagos and other neighbouring states and subsequently initiated a search and rescue operation. The search and rescue team from Ibadan was able to locate the wreckage of the helicopter at Ikonifin near Ife-Odan in a hilly terrain between Iwo and Ogbomoso later that night at about 2250hrs.

2.2 The Pilot

The pilot did not have ATPL (H) but had a CPL (H) without IR. He did not have a valid simulator at the time of the accident; his simulator expired on the 15th July, 2011. The operator's SOP and Operations Manual Part A, stated the minimum qualification of OAS Crew and Single-Pilot Crew. Their SOP specifically stated that the minimum qualification of CPL (H) & IR is a requirement that all flight crew must possess, while the organisation Operations Manual puts the minimum qualification as a valid ATPL (H). This reveals an obvious ambiguity between the SOP and Operations Manual.

From the evidence available to AIB, it was observed that the pilot had no route experience on the Lagos-Ilorin route. NCAA emphasizes the need for route familiarisation in the Nig. CARs. All the accident pilot's proficiency checks were done in the Philippines. Proficiency checks should be done on the company equipment and operational routes. He was a Nigeria-based crew that required local operating

experience with Nigerian Civil Aviation Authority Certificate of Validation endorsement.

The Nig. CARs and OAS manuals made the Visual Flight Rule very clear. The non-adherence to these rules led the pilot to fly into the foggy area which obscured the terrain. The damage to the blades, that is, both the main and tail rotor blades was consistent with engine on power.

2.3 The Flight Dispatcher

The Flight Dispatcher was employed by OAS in 2005, but only obtained his licence on the 29th December 2010. He is relatively new on the job as a licensed Flight Dispatcher. He stated that the pilot was briefed on the following: weather, en-route minimum altitude, available NOTAM, fuel required/endurance, 1500ft was filed as the altitude in the flight plan and was advised to remain clear of cloud and in visual contact with ground/terrain.

Dispatcher/Flight Operations of Odengene Air Shuttle Services Limited shall keep pilots aware of weather conditions at pilot's point of departure, en-route and destination (airport, heliports etc).

The Flight Dispatcher was expected to be in touch with the aircraft till it arrived at the destination. He knew when the aircraft departed Lagos and the estimated arrival time Ilorin destination. There was no record that he notified anybody beyond the estimated time of arrival (ETA). He did not raise any form of alarm or consult with anybody by phone or any other means, until information was received at 1500hrs about the crash. The wreckage was later found at about 2250hrs.

2.4 Maintenance Engineer/Missing GPS

An Aircraft Maintenance Engineer who was not rated on the aircraft was sent to the crash site. He was not the Engineer that released the aircraft for flight the previous day. This engineer assisted in the recovery of the Helicopter parts alongside the AIB investigators, but was unable to locate both the installed and hand-held GPS. These were the only items missing on the accident aircraft instrument panel - the installed and the hand-held GPS, navigational equipment that would have helped in the investigation. These GPS were equipped with non-volatile memory, which enable the equipment to retain valuable information when power is removed from the aircraft and can be downloaded to assist the investigation. It was a mystery that two equipment that do same job were the only equipment missing/stolen from the aircraft at the crash site.

2.5 Nigerian Civil Aviation Authority (NCAA)

The NCAA clearly outlined the qualification of a commercial pilot licence (H) holder on page B 304 of Nig.CARs 2.2.4.1 (7) July 2009.
The regulation made it mandatory that all commercial helicopter pilots must possess an Instrument Rating.
The pilot of the accident aircraft did not have instrument rating; he maintained low altitude even when the peak of the hill as depicted on the chart was 2010ft.

However, the Operational Specification granted the operator by NCAA exempted them from Part 6.5, 7.1 and 7.2 of the Nig.CARs. This means that the Operator is limited to VFR Operations only.

There is a regulation on re-currency (Nig.CARs 8.10.1.33). AIB has evidence that the pilot simulator expired on 15th of July 2011, but there was no physical evidence showing any simulator result either from OAS or NCAA personnel files, and instead Pilot's Proficiency Check Test Report was attached. This was a check performed in a foreign registered aircraft. A simulator check is different from checks performed in the aircraft. Simulator checks expose a pilot to almost all emergency exercises which are not possible to simulate in the aircraft, an example is the simulation of engine failure. This type of failure in real life, is not allowed to be simulated in an aircraft.

In a single-engine helicopter, this type of simulation helps to teach a pilot how to manoeuvre in case of an engine failure in a simulator. Auto-rotation exercises are usually performed in the simulator. However, the exercise can be performed in the aircraft without shutting down the engine(s), but with throttle lever placed in the idle position. Simulator check cannot be substituted for Aircraft Proficiency check without limitations in a commercial operation. Re-currency training is mandatory, and must be performed at least once in 12 calendar months.

The Certificate of Validation dated 21st February, 2011 issued to the pilot to expire 19th August, 2011 had some alterations on it, which rendered it invalid. NCAA issued another Certificate of Validation dated 19th July, 2011. No simulator report was attached to the application, however, a Pilot Proficiency Check Test Report was attached, but the NCAA renewal validation form clearly indicated that the pilot should fly as a Co-pilot and not as a PIC.

2.6 The Nigerian Airspace Management Agency

The evidence available to AIB showed that the last attempt the Controller made to contact the accident aircraft was at 1001:18hrs. The pilot requested at 0950:25hrs to climb to 1500ft when the minimum en-route altitude is 3100ft on Jeppesen chart for that route. The Flight Dispatcher in his statement stated that the pilot was fully briefed about the minimum en-route altitude.

2.7 Security Agencies

The Police and Civil Defence were involved in the search and rescue of the accident aircraft. The Police personnel neither cordoned off nor secured the crash site when it was finally located. There was no crowd control at the crash site which aided the looting of the accident aircraft coupled with the fact that the accident helicopter was located several hours (about 12hrs) after the crash.

3.0 CONCLUSIONS

3.1 Findings

3.1.1 The ATC did not report the loss of contact with the accident aircraft to relevant authorities until at about six hours later.

3.1.2 The ATC confirmed that the accident was reported at about 1500hrs by a villager.

3.1.3 The accident occurred between 0950hrs and 1000hrs as per the Ibadan ATC transcript, but the crash site was located at about 2250hrs.

3.1.4 The crash site was located by the combined team of NEMA, NAMA and local hunters.

3.1.5 The last major check on the aircraft was carried out in April 2011.

3.1.6 There was no fire outbreak at the crash site.

3.1.7 The main rotor assembly detached from the aircraft and was found at a point 25 meters away from the main wreckage. The damage on the rotor blades showed that they were on power at the time of crash.

3.1.8 The Lagos ATC cleared the pilot to maintain 1000ft on QNH 1014.

3.1.9 The Pilot requested to climb to 1500ft from Ibadan ATC and was granted.

3.1.10 The sector minimum en-route altitude is 3100ft (Jeppesen).

3.1.11 The pilot simulator expired on the 15th July, 2011; fourteen days before the accident.

3.1.12 The aircraft was not fitted with Flight Recorders.

3.1.13 There was no evidence that either the ATC or Dispatcher made any attempt to make contact with the aircraft or any other station till after 1500hrs.

3.1.14 The map found in the helicopter was neither Jeppesen chart nor any known navigational chart.

3.1.15 The Police and other security personnel did not cordon off the crash site and could not control the crowd.

3.1.16 The crash site was heavily looted.

3.2.1 Causal Factor:

The non-adherence of the Pilot to Visual Flight Rules of clear-of cloud and obstacles while maintaining ground contact at all times led to Controlled Flight into Terrain (CFIT).

3.2.2 Contributory Factors:

i. The Pilot was not Instrument Rated.

ii. The pilot's lack of route familiarization.

4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2014-016

NCAA should ensure that all helicopters used for commercial operations in Nigeria are Instrument Rating compliant and pilots are instrument rated.

4.2 Safety Recommendation 2014-017

NCAA should ensure that Single-Pilot helicopters used for commercial operations have auto-pilot with altitude and heading hold.

4.3 Safety Recommendation 2014-018

NAMA should provide low level en-route charts for Helicopter operations in Nigeria.

4.4 Safety Recommendation 2014-019

NCAA should intensify its oversight responsibilities on the need for simulator recurrency at least once a year, irrespective of aircraft type.

4.5 Safety Recommendation 2014-020

The Police should carry out a nationwide re-orientation and training of its personnel to ensure the following:

- Security of crash sites through effective cordoning by the Police;
- Recognizing the primacy of Air Safety Investigators at crash sites;
- Maintaining law and order and crowd control.

These functions should be incorporated into the ab initio police training curriculum.