PRELIMINARY REPORT ON SERIOUS INCIDENT INVOLVING BRISTOW HELICOPTERS NIGERIA LTD EMBRAER 135 AIRCRAFT WITH NATIONALITY AND REGISTRATION MARKS 5N-BSN WHICH OCCURRED AT PORT HARCOURT MILITARY AIRPORT (NAF BASE), PORT HARCOURT ON THE 9TH OF MARCH 2020

Registered Owner and Operator:	Bristow Helicopters (Nigeria) Limited
Aircraft Type and Model:	Embraer EMB-135ER
Manufacturer:	Empresa Brasileira de Aeronautica SA, Brasilia
Year of Manufacture:	1999
Nationality and Registration Marks:	5N-BSN
Serial Number:	145198
Location:	Port Harcourt Military Airport (NAF Base)
Date and Time:	9th March, 2020
	All times in this report are local time (UTC +1) unless otherwise stated

INTRODUCTION

Accident Investigation Bureau (AIB) was notified of the serious incident by the operator on 9th March, 2020. Investigators were dispatched to the site on 10th May, 2020 and commenced post incident assessment under the provisions of Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2019 and ICAO Annex 13.

The purpose of this preliminary report is to provide details of initial facts, discussions and findings surrounding the occurrence. This includes information gathered from

witness statements, Air Traffic Services and a preliminary inspection of the incident site and the aircraft.

The investigation is ongoing.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

On 9th March 2020 at about 07:35 h, an Embraer EMB-135ER aircraft with nationality and registration marks 5N-BSN owned and operated by Bristow Helicopters (Nigeria) Limited departed Lagos and arrived Port Harcourt Military base at about one hour later. The flight from Lagos to Port Harcourt was normal.

Evidence available to the Bureau showed that 5N-BSN started engine at 09:03 h and requested Flight Level 300. At 09:14 h, ATC cleared 5N-BSN to Lagos (DNMM) to operate via Flight plan route for Flight Level 180 (Request Level Change Enroute). Take-off clearance was given to 5N-BSN and to maintain runway heading until in contact with Port Harcourt International (DNPO) Approach.

At 09:19 h, 5N-BSN was airborne Port Harcourt Military (DNPM). There were 34 persons on board inclusive of 2 flight crew and 2 cabin crew with fuel endurance of 3 hours 20 minutes. The Captain was the Pilot Flying (PF) and the Co-pilot was the Pilot Monitoring (PM).

According to the flight crew, climbing through 300 feet after gear retraction, a loud bang was heard on the left side, aircraft yawed to the left, Engine-Indicating and Crew-Alerting System (EICAS) showed that the left engine had failed. The crew stated that the aircraft was put under control and climbed to a safe altitude of 1,500 ft. Thereafter, they completed the one engine out checklist. The Quick Reference Handbook was consulted for abnormal and emergency procedures.

Cabin crew and passengers were briefed that an engine had failed and emergency landing was imminent in about 8-10 minutes.

At 09:21 h, 5N-BSN declared May Day to Port Harcourt Military tower and requested diversion to Port Harcourt International Airport (DNPO) and was granted. At 09:22 h,

5N-BSN contacted DNPO Approach explained the situation and requested to land at DNPO airfield.

At 09:24 h, 5N-BSN reported 16 NM South of POT and was vectored to runway 03. Approach passed the following airfield information to 5N-BSN as follows: "PORT HARCOURT AT 0810UTC S/W 260/04, VIS 10KM, WX NIL, BKN 330, QNH 1011, TEMP 31."

Meanwhile, the DNPO ATC had called the fire station and ambulance to position on both runway 03 and 21.

At 09:26 h, DNPO Approach informed Tower that 5N-BSN would no longer land on runway 03 but runway 21.

At 09:34 h on Heading 120, 12 NM out, 5N-BSN was cleared for ILS approach runway 21.

At 09:38 h, on first contact with the Tower on Final Approach, the duty air traffic controller (DATCO) asked if the aircraft was aligned with the centerline of the runway. On affirmation, the DATCO cleared the aircraft to land on runway 21.

At 09:40 h, 5N-BSN landed safely and DNPM was informed.

At 09:41 h, 5N-BSN exited the runway, reported marshaller in sight and taxied off the runway through the rapid exit point safely to the domestic apron where the passengers disembarked safely using the normal exit door.

According to the Captain during the post-occurrence interview, a decision to land at DNPO was facilitated by the company's emergency procedure and the type of facilities available. However, the Pilot Monitoring said the diversion was necessary to enable the ATC radar-vector the incident aircraft from other traffic around.

The incident occurred in daylight and Visual Meteorological Conditions prevailed at the time of occurrence.

1.2 Injuries to Persons

Injuries	Crew	Passengers	Total in the aircraft	Others
Fatal	Nil	Nil	Nil	Nil
Serious	Nil	Nil	Nil	Nil
Minor	Nil	Nil	Nil	Not applicable
None	4	30	34	Not applicable
TOTAL	4	30	34	Not applicable

1.3 Damage to Aircraft

Nil.

1.4 Other Damage

Nil.

1.5 Personnel Information

1.5.1 Captain

Nationality:	Nigerian
Age:	38 years
License Type:	ATPL
License Validity:	21st Jan, 2025
Medical Validity:	15th May, 2020
Ratings:	Single Engine, Multi Engine
	B-58, TB-20, EMB 135/145, B737-300/500

Total Flight Time:	5,600 h
Hours on Type:	1,800 h
Hours on Type as PIC:	70 h
Last 90 days:	90 h
Last 28 days:	80 h
Last 7 days:	Not Available
Last 24 Hours:	01:40 h

1.5.2 Co-Pilot

Nationality:	Nigerian
Age:	59 years
License Type:	ATPL
License Validity:	17th April, 2023
Medical Validity:	13th June, 2020
Ratings:	PA 23, C-172, D228, CE-500, BE-200, DASH-6 (TWIN OTTER), D328, CE 560 XLS, BAC 1-11, B-727, EMB 135/145
Total Flight Time:	11,500 h
Hours on Type:	1,500 h
Hours on Type as PIC:	1,500 h
Last 90 days:	100 h
Last 28 days:	70 h
Last 7 days:	01:40 h
Last 24 Hours:	01:40 h

1.6 Aircraft Information

1.6.1 General information

Manufacturer:	Empresa Brasileira de Aeronautica SA, Brasilia
Model:	EMB-135ER
Serial No:	145198
Year of manufacture:	1999
Nationality and Registration marks:	5N-BSN
Owner/Operator:	Bristow Helicopters (Nigeria) Limited
Total airframe time:	2,316:35 h
Total landing cycle:	Not Available
Certificate of Airworthiness:	2nd August, 2020
Certificate of Insurance:	1st April, 2021

1.6.2 Engine

No. 1

Type:	AE3007A1/3
Manufacturer:	Rolls Royce Holdings Incorporated, London, United Kingdom
Part Number:	23070402
Serial Number:	CAE3110071
Year of Manufacture:	1997
Time Since New:	39,409:05 h
Cycle Since New:	26,464

1.7 Meteorological information

1.7.1 Meteorological Conditions for DNPM

Time	0700 Z	0800 Z	0900 Z
Wind	020°/03 kt	320°/02 kt	240°/03 kt
Visibility	6000 m	10 km	10 km
Weather	Nil	Nil	Nil
Clouds	SCT 240 m	BKN 270 m	BKN 300 m
Temperature/ Dew point:	28°C/25°C	29°C/25°C	30°C/23°C
QNH	Nil	Nil	Nil
Trend	Nil	Nil	Nil

1.7.2 Meteorological Conditions for DNPO

Time	0800 Z	0830 Z	0900 Z
Wind	250°/04 kt	280°/03 kt	250°/04 kt
Visibility	10 km	10 km	10 km
Weather	Nil	Nil	Nil
Clouds	SCT 300 m	BKN 330 m	BKN 330 m
Temperature/ Dew point:	30°C/26°C	31°C/26°C	31°C/26°C
QNH	1011 hPa	1011 hPa	1011 hPa
Trend	NOSIG	NOSIG	NOSIG

1.8 Aids to Navigation

VOR/DME 'POT' VHF 113.5 MHz (FAILED CALIBRATION) - Serviceable

ILS 'IPC' VHF 110.3 MHz - Serviceable

ATIS 112.3MHz - Unserviceable

1.9 Communication

There was effective two-way communication between the aircraft and ATC.

1.10 Aerodrome Information

1.10.1 Port Harcourt Military Airport

Port Harcourt Military Airport is an airport controlled by Nigerian Airforce (NAF). The coordinates of the airport are 4°50'45"N and 7°01'15"E. It is on an elevation of 63 ft AMSL with an asphalt-coated, it has two runways – 04 and 22. The length of the runway is 6,923 ft (2,110.13 m).

1.10.2 Port Harcourt International Airport

Port Harcourt International Airport is located 32 km West from the city. The Aerodrome Reference Point is 050055.6545N 0065658.3168E from the midpoint of the runway. It has an elevation 91 ft AMSL and permits both IFR and VFR traffic. It has two runways – 03 and 21. The length of the runways are 3,000 m and 60 m wide. The runways are asphalt coated with bearing strength classified with Load Classification Number (LCN) 100.

1.11 Flight Recorders

The aircraft is fitted with Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR). The recorders were taken to the Bureau's Flight Safety Laboratory in Abuja for download and analysis. The recorders were successfully downloaded. The cockpit Voice Recorder (CVR) recordings were found to have been overwritten.

	SOLID STATE COCKPIT VOICE RECORDER (SSCVR)	SOLID STATE FLIGHT DATA RECORDER (SSFDR)
Manufacturer	Honeywell International Inc., USA	Honeywell International Inc., USA
Part Number	980-6022-001	980-4700-042
Serial Number	CVR120-04770	7545

1.12 Wreckage and Impact Information

The aircraft was intact.

Figure 1: 5N-BSN parked on the Apron at DNPO after occurrence

Figure 2: Engine Number 1 after the incident

Figure 3: Position of engine number 1 fire handle at post occurrence inspection

1.13 Medical and Pathological Information

Nil.

1.14 Fire

There was no fire.

1.15 Survival Aspects

The incident was survivable as there was livable volume. The seats and the seat belts were intact. There was no evidence of fire in flight. Emergency services were alerted and positioned before the arrival of the aircraft. The passengers disembarked through the normal exit door.

1.16 Test and research

Borescope inspection of the left engine was carried out. The reports are not yet available.

1.17 Organisational and Management Information

Bristow Helicopters (Nigeria) Limited

Bristow Helicopters (Nig.) Limited is a player in the Nigerian oil and gas industry and has been in operation for more than 40 years. Bristow Helicopters Nigeria Limited is also involved in deep-water helicopter services. The operational office is located at the Murtala Muhammed International Airport, General Aviation Terminal, Ikeja, Nigeria.

Bristow Helicopters operations include both the fixed wing and rotary wing.

1.18 Additional Information

Some debris were found on the left engine tail pipe.

Initial Findings

1. The crew were licensed and qualified to conduct the flight in accordance with existing regulations.
2. The aircraft had a valid Certificate of Airworthiness.
3. The Captain was the Pilot Flying at the time of the incident.
4. The flight originated from Port Harcourt Military and diverted to Port Harcourt International Airport.
5. The mass and centre of gravity of the aircraft were within prescribed limits.
6. The CVR was overwritten.
7. At 09:19 h, 5N-BSN departed Port Harcourt Military with 34 persons on board including two flight crew and two cabin crew, fuel endurance 3 hours 20 minutes.
8. During climb through 300 ft; after gear retraction, a loud bang was heard from the left side according to the crew.
9. A May Day call was made to Port Harcourt Military Tower informing them of the situation and the intention of diverting to Port Harcourt International airport.
10. The aircraft was radar-vectored to position Finals for the ILS runway 21 approach.
11. 5N-BSN landed safely on runway 21 DNPO at 09:40 h.
12. The passengers disembarked normally without injury.
13. The Airport Rescue and Fire Fighting Services (ARFFS) were on stand-by Port Harcourt International airport before the arrival of 5N-BSN.
14. Debris were found in the left engine tail pipe.
15. Port Harcourt Military aerodrome information is not published in Aeronautical Information Publication neither was there any local air traffic control information on the aerodrome.