



Preliminary Report on the serious incident involving a Boeing 737-300 aircraft owned and operated by Air Peace Limited with nationality and registration marks 5N-BUQ which occurred After Take-Off from Sam Mbakwe Airport, Owerri Enroute Lagos on 22nd November, 2021

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|--|--|
| Registered owner and operator: | Air Peace Limited |
| Aircraft type and model: | Boeing 737-300 |
| Manufacturer: | The Boeing Company, USA |
| Year of manufacture: | 1997 |
| Nationality and registration marks: | 5N-BUQ |
| Serial number: | 27910 |
| Location: | About 2,500 ft climbing out of Sam Mbakwe International Cargo Airport, Owerri. |
| Date and time: | 22nd November, 2021 at about 17:57 h |

All times in this report are local time (UTC+1) unless otherwise stated

INTRODUCTION

Accident Investigation Bureau, Nigeria (AIB) was notified of the serious incident by the operator on 23rd November, 2021. Investigators were dispatched to Port Harcourt International Airport where the aircraft was parked after diversion to Port Harcourt on 22nd November, 2021. Post incident assessment commenced immediately under the provisions of Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2019 in accordance with ICAO Annex 13.



The purpose of this preliminary report is to provide details of initial facts, discussions and findings surrounding the occurrence; it includes information gathered from witness accounts/statements, flight recorders, Air Traffic Control (ATC) recordings, weather reports and preliminary inspection of the aircraft.

The investigation is ongoing.

1.0 FACTUAL INFORMATION

1.1 History of the flight

On 22nd November 2021, a Boeing 737-300, 5N-BUQ with flight number APK7159, departed as a scheduled passenger flight from Sam Mbakwe airport, Owerri (DNIM) to Murtala Muhammed airport, Lagos (DNMM) on instrument flight Rules (IFR) Flight Plan. The incident flight was the fourth sector for the day. On board were 101 persons inclusive of two (2) cockpit crew members and four (4) Cabin Crew members, fuel on board at the time of departure was 0300 hrs, the Pilot was Pilot Flying (PF) while the Co-pilot was the Pilot Monitoring (PM).

At 17:47 h, APK7159 was given start up clearance with QNH 1009 hPa at 26°C by Owerri Air Traffic Control (ATC).

At 17:50 h APK7159 taxied and backtracked on runway 35, with take-off clearance: "surface wind calm, after Departure maintain runway heading passing 2,000 ft QNH 1009 hPa, left turn on course clear take-off RWY 35 ". Take-off was at 17:52 h.

After take-off during Climb Out, the crew heard multiple loud bangs accompanied with vibrations and also noticed the values of engine parameters for No 1 Engine N_1 and N_2 reducing rapidly with excessive rise in Exhaust Gas Temperature (EGT) above limits. The flight crew executed the ENGINE FIRE OR ENGINE SEVERE DAMAGE OR SEPARATION Checklist and shut down engine No1 in accordance with the QRH (quick reference handbook)

At 17:57 h, while climbing through 2,500 ft, APK7159 declared "MAYDAY, MAYDAY, MAYDAY we have engine No 1 failure, we will call you, back to land" and the Owerri Tower acknowledged.

At 17:59 h, APK7159 contacted Port Harcourt Approach and reported "we have engine No 1 failure, we've shut down and need vectors to Port Harcourt, we have just one engine MAYDAY, MAYDAY, MAYDAY". Approach contacted Control Tower to transmit same and all emergency services were activated.

Approach cleared APK7159 to "POT" 3.0 on QNH 1010 hPa and turn left heading 180, cleared ILS APP Runway 21, descend 2,500 ft on QNH 1010 hPa and the crew acknowledged.

At 18:12 h, APK7159 reported established 8 miles on the ILS to Port Harcourt Approach. Approach confirmed their position and handed them to Tower 119.2 MHz.

At 18:13 h, Port Harcourt Tower cleared APK7159 to land with runway 21 in sight, surface wind 270°/05 kt, QNH 1010 hPa

AT 18:15 h, APK7159 landed and taxied to the apron.

All passengers disembarked normally without injury.

The incident occurred in daylight and Visual Meteorological Conditions (VMC) prevailed.

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 | 6 | 95 | Nil | 101 |
| Total | 6 | 95 | Nil | 101 |

1.3 Damage to aircraft

No damage.

1.4 Other damage

Nil

1.5 Personnel information

1.5.1 Pilot

| | |
|----------------------|---|
| Nationality: | British |
| Age: | 28 years |
| Licence type: | Airline Transport Pilot Licence (Aeroplane) |
| Licence: | Valid till 18th March, 2024 |
| Aircraft ratings: | B737-300/500 |
| Medical certificate: | Valid till 31st January, 2022 |
| Instrument rating: | Valid till 31st December, 2021 |
| Proficiency check: | Valid till 31st December, 2021 |
| Total flying time: | 5,651 h |
| Total on type: | 5,492:45 h |
| Last 90 days: | 224:50 h |
| Last 28 days: | 84:00 h |
| Last 7 days: | Nil |
| Last 24 hours: | 4:40 h |

1.5.2 Co-pilot

| | |
|----------------------|--------------------------------------|
| Nationality: | Nigerian |
| Age: | 37 years |
| Licence type: | Commercial Pilot Licence (Aeroplane) |
| Licence: | Valid till 16th May, 2023 |
| Aircraft ratings: | B737-300/500 |
| Medical certificate: | Valid till 31st December, 2021 |
| Instrument rating: | Valid till 31st December, 2021 |
| Proficiency check: | Valid till 31st December, 2021 |
| Total flying time: | 2,345 h |
| Total on type: | 2,055 h |
| Last 90 days: | 150 h |
| Last 28 days: | 60 h |
| Last 7 days: | 4 h |
| Last 24 hours: | 4 h |

1.6 Aircraft information



Photo showing the aircraft on ground Port Harcourt airport after the occurrence.

1.6.1 General information

| | |
|-------------------------------------|---------------------------------|
| Type: | Boeing 737-300 |
| Manufacturer: | The Boeing Company, USA |
| Year of manufacture: | 1997 |
| Serial number: | 27910 |
| Registered owner/operator: | Air Peace Limited |
| Nationality and registration marks: | 5N-BUQ |
| Certificate of airworthiness: | Valid till 23rd September, 2022 |
| Certificate of insurance: | Valid till 8th January, 2022 |
| Certificate of registration: | 2nd June, 2017 |
| Noise certificate: | 2nd June, 2017 |
| Airframe time: | 39,429:30 h |
| Cycles Since New (CSN): | 24,386 |

1.6.2 Power plant

| | No. 1 | No. 2 |
|-------------------------------|-----------------------|-----------------------|
| Engine type | CFM 56-3C-1 | CFM 56-3C-1 |
| Manufacturer | CFM International USA | CFM International USA |
| Serial number | 858544 | 858543 |
| Time Since New (TSN) | 54,344.44 h | 55,608.06 h |
| Cycles Since New (CSN) | 35, 035 | 36, 632 |
| Year of manufacture | 1997 | 1997 |

Fuel type used: Jet A-1

1.7 DNPO Meteorological information

| Time | 1600z | 1700z | 1800z |
|---------------------------|------------------------|------------------------|------------------------|
| Wind | 200°/06 kt | 270°/05 kt | 210°/03 kt |
| Visibility | 8000 m | 8000 m | 8000 m |
| Weather | Thunderstorm | Thunderstorm | Thunderstorm |
| Cloud | BKN 240 m FEW 570 m CB | BKN 240 m FEW 570 m CB | BKN 240 m FEW 570 m CB |
| Temperature/ Dew point | 25/24°C | 25/24°C | 25/24°C |
| QNH | 1009 hPa | 1010 hPa | 1009 hPa |
| Trend | TEMPO 5000 m -TSRA | TEMPO 5000 m - TSRA | TEMPO 5000 m -TSRA |

1.8 Aids to navigation

Status of navigational aids at Port Harcourt Airport on the day of the occurrence were as follows;

VOR/DME - 'Serviceable'-

ILS/DME - 'Serviceable'-

1.9 Communications

There was effective communication between the crew and Air Traffic Control units.

1.10 Aerodrome information

1.10.1 Port Harcourt International Airport (DNPO)

Port Harcourt International Airport (DNPO) Aerodrome Reference Point is 05°00'56"N, 006°56'58"E and has an elevation of 27 m (87 ft). The aerodrome has a bi-directional runway with orientation of 03 and 21. The length and width of the runway are 3,000 m (9,843 ft) and 60 m (197 ft) respectively with an asphalt/concrete surface and a blast pad of 120 m (393.7 ft) at both ends. Both runways have Precision Approach Lighting System (PALS) and Runway 21 is equipped with Precision Approach Path Indicator (PAPI).

1.10.2 Sam Mbakwe International Cargo Airport (DNIM)

Sam Mbakwe International Cargo Airport, Owerri with location indicator DNIM has bi-directional runways with orientation of 17 and 35. The length and breadth of the runways are 2,700 m (8,858 ft) and 45 m (148 ft) respectively with asphalt/concrete surface.

The aerodrome Reference Point is 05°25'38"N, and 007°12'22"E and an elevation of 114 m (375 ft) Above Mean Sea Level (AMSL).

RWY 35 has Precision Approach Lighting System (PALS) while RWY 17 has Sodium Approach Lighting System (SALS). Runway 17 is equipped with Precision Approach Path Indicator (PAPI) while Runway 35 only has Omni-directional Simple Approach Lighting System (LIL).

The Airport operational hours are from 0600 – 1800 GMT, fuelling and handling services are not available.

1.11 Flight recorders

The aircraft is fitted with Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

1.11.1 Cockpit Voice Recorder (CVR)

| | |
|----------------------|--------------|
| Model | SSCVR |
| Part Number | 980-6022-001 |
| Serial Number | CVR120-07159 |
| Manufacturer | Honeywell |

1.11.2 Flight Data Recorder (FDR)

| | |
|----------------------|--------------|
| Model | FA2100 |
| Part Number | 2100-4043-00 |
| Serial Number | 000662619 |
| Manufacturer | L3 Harris |

Both recorders were retrieved and transported to the Bureau's Flight Safety Laboratory for download and analysis.

1.12 Wreckage and impact information

Not Applicable.

1.13 Medical and pathological information

Not Applicable.

1.14 Fire

There was no fire.

1.15 Survival Aspects

Not applicable because there was no impact.

INITIAL FINDINGS

1. The flight crew Pilot and Co-pilot were licensed and qualified to conduct the flight.
2. The aircraft had a valid Certificate of Airworthiness at the time of occurrence.
3. The Pilot was the Pilot Flying while the Co-pilot was the Pilot Monitoring.
4. APK7159 had 101 persons including six crew members.
5. About 2 minutes after take-off, climbing through 2,500 ft, the flight crew reportedly heard multiple loud bangs accompanied with vibrations.
6. The flight crew identified No. 1 engine N_1 and N_2 reducing rapidly with EGT rising above limits and exceeding light came ON.
7. The crew declared MAYDAY.
8. ENGINE FIRE OR ENGINE SEVERE DAMAGE OR SEPARATION Checklist was executed and engine shutdown.
9. APK7159 diverted to and landed at Port-Harcourt International Airport.
10. The incident flight was the last leg of four sectors.
11. Emergency services were alerted and positioned before landing.

Further investigation activities.

Teardown of Engine No 1