



# **PRELIMINARY REPORT ON THE SERIOUS INCIDENT INVOLVING AN EMBRAER ERJ 145 AIRCRAFT OPERATED BY UNITED NIGERIA AIRLINES WITH NATIONALITY AND REGISTRATION MARKS 5N-BWW WHICH OCCURRED ON RUNWAY 18L MURTALA MUHAMMED INTERNATIONAL AIRPORT, LAGOS ON 31ST MAY, 2023**

<b>Registered operator:</b>	United Nigeria Airlines Limited
<b>Aircraft type and model:</b>	Embraer ERJ 145LR
<b>Manufacturer:</b>	Yabora Industria Aeronautica, S.A.
<b>Date of manufacture:</b>	January, 2002
<b>Nationality and registration marks:</b>	5N-BWW
<b>Serial number:</b>	145553
<b>Location:</b>	Runway 18L, Murtala Muhammed International Airport, Lagos
<b>Date and time:</b>	31st May 2023 at about 16:04:41 h

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

## **INTRODUCTION**

Nigerian Safety Investigation Bureau (NSIB) was notified by Federal Airports Authority of Nigeria (FAAN) of this occurrence via phone call on the 31st of May, 2023. investigators were dispatched same day to the scene of the occurrence.

The Nigerian Safety Investigation Bureau commenced investigation into the circumstances of the occurrence under the provisions of Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2019 and Annex 13 of International Civil Aviation Organization (ICAO).



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 statements, harvesting of evidence and a preliminary inspection of the aircraft.

**The investigation is ongoing.**



## **1.0 FACTUAL INFORMATION**

### **1.1 History of the flight**

On 31st May 2023 at 14:55h, an Embraer ERJ 145 with nationality and registration marks 5N-BWW, operated by United Nigeria Airlines Company Limited as a charter flight NUA0563 departed Ebonyi International Airport (DNEB), Ebonyi for Murtala Muhammed International Airport (DNMM), Lagos. The incident flight was the sixth sector of the day. On board the aircraft were 50 persons inclusive of 2 flight crew and 2 cabin crew with fuel endurance of 2 hours 29 minutes. The Pilot was the Pilot Flying (PF) while the Co-pilot was the Pilot Monitoring (PM).

At about 15:00h, 5N-BWW was airborne Ebonyi airport en route DNMM, Lagos.

At 16:01:16 h, NUA0563 contacted Lagos Approach and reported 6 miles to runway 18L. Tower cleared the aircraft to continue approach and to confirm call sign, which was confirmed by the crew. NUA0563 was further cleared to continue approach and advised of traffic on runway 18L; an ATR-76 on take-off roll.

At 16:01:53 h, the ATR-76 was cleared for take-off 18L, to maintain runway heading and contact Approach on 124.7.

At 16:02:39 h, Tower cleared NUA0563 to land runway 18L, surface wind of 220/10 kt. According to ATC, "weather was good at the time, no rainfall, no precipitation of any sort" and NUA0563 acknowledged in the affirmative.

At 16:04 h, NUA0563 landed on runway 18L. During the landing roll, Tower observed the aircraft veered off to the right of the runway centreline onto the grass verge between Link 3 and Link 4, coming to a stop on the grass verge parallel to the runway between Link 4 and Link 5.

At 16:04:28 h, NUA0563 called out "MAYDAY, MAYDAY, MAYDAY".



At 16:05:03 h, Tower activated the CRASH ALARM. The Aerodrome Rescue and Fire Fighting Services (ARFFS) moved to the site immediately after the crash alarm bell was activated.

The runway was then closed to traffic.

At 16:05:42 h, Tower raised MMF02 on the radio to confirm if the team was on ground, which was in the affirmative.

At 16:11:59 h, all passengers disembarked normally without injury.

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

## 1.2 Injuries to persons

<b>Injuries</b>	<b>Crew</b>	<b>Passengers</b>	<b>Total in the aircraft</b>	<b>Others</b>
<b>Fatal</b>	Nil	Nil	Nil	Nil
<b>Serious</b>	Nil	Nil	Nil	Nil
<b>Minor</b>	Nil	Nil	Nil	Nil
<b>None</b>	4	50	54	Nil
<b>Total</b>	4	50	54	Nil

## 1.3 Damage to aircraft

The aircraft was substantially damaged.

## 1.4 Other damage

Two taxi-way edge lights were broken.



**Figure 1: Picture of broken taxiway edge light**

## **1.5 Personnel information**

### **1.5.1 Pilot**

Nationality:	Nigerian
Age:	41 years
Licence type:	Airline Transport Pilot Licence (Aeroplane)
Licence:	Valid till 26th December 2023
Aircraft ratings:	Embraer-135/145, De Havilland Canada- Q400, Boeing 737-NG



Medical certificate:	Valid till 26th December 2023
Simulator:	Valid till 30th June 2023
Instrument rating:	Valid till 8th September 2023
Proficiency check:	30th June 2023
Total flying time:	7,000 h
Total on type:	450 h
Total on type (PIC):	450 h
Last 90 days:	162 h
Last 28 days:	43 h
Last 7 days:	Nil
Last 24 hours:	4:12 h

### **1.5.2 Co-Pilot**

Nationality:	Nigerian
Age:	48 years
Licence type:	Commercial Pilot Licence (Aeroplane)
Licence validity:	18th October 2023
Aircraft ratings:	Boeing 737-NG, Embraer-135/145, Airbus 320
Medical certificate:	Valid till 18th October 2023
Simulator:	Valid till 18th November 2023
Instrument rating:	Valid till 18th May 2024
Proficiency check:	Valid till 18th November 2023
Total flying time:	3,330 h
Total on type:	1,164 h
Last 90 days:	139 h
Last 28 days:	42:06 h
Last 7 days:	Nil
Last 24 hours:	Nil



### 1.5.3 Engineer

Nationality:	Nigerian
Age:	35 years
Licence validity:	Valid till 18th April 2028
Aircraft ratings:	Embraer-135/145

### 1.5.4 Purser

Nationality:	Nigerian
Age:	38 years
Licence type:	Cabin crew
Licence validity:	1st February 2024
Aircraft ratings:	Embraer-135/145, Airbus 320

## 1.6 General Information

### 1.6.1 Aircraft Information

Type:	Embraer-145
Manufacturer:	Yabora Industria Aeronautics S.A. Brazil
Date of manufacture:	January 2002
Serial number:	145553
Registered operator:	United Nigeria Airlines Company Ltd.
Registration number:	5N-BWW
Certificate of Airworthiness:	Valid till 29th April 2024
Certificate of Insurance:	Valid till 11th August 2023
Certificate of Registration:	Issued on 10th March 2022
Noise certificate:	Issued on 9th November 2020
Airframe time:	43,667.1 h
Cycles since new (CSN):	35,221



### 1.6.2 Engines

Engine	Number 1	Number 2
Manufacturer	Rolls Royce, UK	Rolls Royce, UK
Model	AE3007AIP	AE3007AIP
Serial number	CAE-311333	CAE-312037
Time Since New (TSN)	33,020:26h	39,430:46 h
Cycles Since New (CSN)	27,261	32,701

Fuel type used: Jet A-1

### 1.7 Meteorological Information

Time	1600Z	Special Report (SPECI) 1609Z	1700Z
Wind	200/11 kt	190/14 kt	200/12 kt
Visibility	10 km	10 km	10 km
Weather	Nil	Nil	Nil
Cloud	Broken 1,400 ft	Broken 1,400 ft	Scattered 1,400 ft, Few 2,000 ft CB
Temperature /Dewpoint	32°C /25°C	31°C /25°C	31°C /25°C
QNH	1011 hPa	1011 hPa	1010 hPa
Trend	No Significant Change	No Significant Change	No Significant Change

### 1.7 Aids to Navigation

VHF 113.7MHz "LAG" DVOR/DME – "Serviceable"

VHF 110.3MHz "ILA" ILS/DME RWY 18L – "Serviceable"

VHF 108.1MHz "ILB" ILS/DME RWY 18R – "Serviceable"





## 1.8 Communications

There was two-way communication between the flight crew of NUA0563 and Air Traffic Control.

## 1.9 Aerodrome Information

The Murtala Muhammed International Airport (MMIA) has two bi-directional runways - RWY 18L/36R, 9,006 ft (2,745 m) and 18R/36L, 12,795 ft (3,900 m). It is located on an elevation of 135 ft with coordinates N06° 34'43.1298", E03° 19'.12'.

The runway surfaces are asphalt coated. The ICAO designated code is DNMM.

## 1.10 Flight Recorders

The aircraft was fitted with Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) with the following particulars:

	<b>Flight Data Recorder</b>	<b>Cockpit Voice Recorder</b>
<b>Manufacturer</b>	Honeywell, USA	Honeywell, USA
<b>Model</b>	SSFDR	SSCVR
<b>Part Number</b>	980-4700-042	980-6022-001
<b>Serial Number</b>	SSFDR-08762	CVR120-05078

The Cockpit Voice Recorder (CVR) and the Flight Data Recorder (FDR) were successfully downloaded at the Bureau's Transportation Safety Laboratory, Abuja.

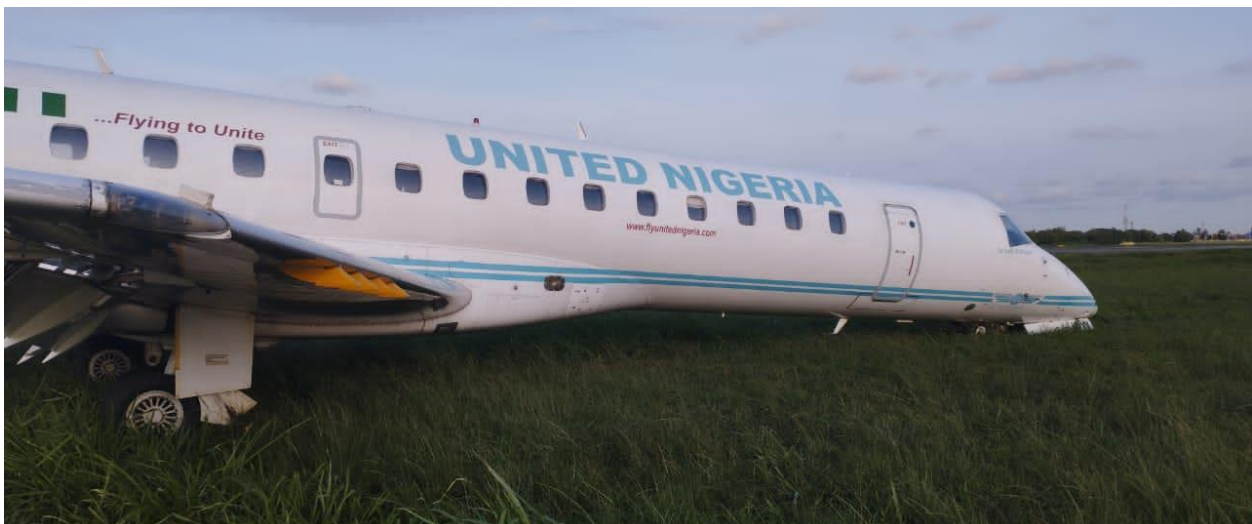
## 1.11 Wreckage and Impact Information

During landing roll, the aircraft veered to the right of runway 18L centreline for a distance of about 936 m from the runway threshold to the runway shoulder and continued onto

the grass verge. It further moved on the grass verge, crossed a drainage channel onto the paved way at Link B3, a distance of about 1,760 m and continued onto the grass verge on the other side of the link. The aircraft then crossed another drainage channel and having travelled a total distance of about 1,860 m from the runway threshold, came to a stop. In the process, the aircraft nose landing gear assembly collapsed.



**Figure 2: The aircraft where it stopped on the grass verge**



**Figure 3: Picture of the final position of 5N BWW after the occurrence.**



**Figure 4: The collapsed nose wheel landing gear**

### **1.12 Medical and pathological information**

Drug and alcohol tests were conducted on the crew and the results were negative.

### **1.13 Fire**

There was no fire.

### **1.14 Survival aspects**

The occurrence was survivable. The passenger restraint system; seat belts and shoulder harnesses were intact and functioned appropriately. There was liveable volume for the occupants.



## **Initial Findings**

1. The flight crew were licensed and qualified to conduct the flight.
2. The Pilot was the Pilot Flying while the Co-pilot was the Pilot Monitoring.
3. The aircraft had a valid Certificate of Airworthiness at the time of occurrence.
4. During the landing roll, 5N-BWW veered off right of runway 18L centreline onto the grass verge, 937 m from the runway threshold.
5. The aircraft came to a stop on the grass verge at a distance of about 1,860 m from runway 18L threshold.
6. At 16:04:28 h, 5N-BWW called out "MAYDAY, MAYDAY, MAYDAY".
7. At 16:05:03 h ATC activated the crash alarm.
8. The Aerodrome Rescue and Fire Fighting Services (ARFFS) moved to the site immediately after the crash alarm bell was activated.
9. The Approach Radar unit was informed of the temporary closure of Runway 18L to traffic.

## **Further Investigative Action**

1. Transcribe the CVR and analyse the FDR plot for the circumstances surrounding the flight.
2. Test and analysis of the steering wheel/tiller systems.



## **Immediate Safety Recommendation**

United Nigeria Airlines should ensure compliance with Embraer Service Bulletin (SB) 145-32-0099 (current revision 03, dated April 8, 2005). The SB recommended upgrading the nosewheel steering hydraulic manifold, which required inspecting specific dimensions that were considered critical for the proper operation of the O-ring seals within the EHSV to ensure that they were within tolerance limits.