

**PRELIMINARY REPORT ON THE SERIOUS INCIDENT INVOLVING AN ATR 72-600 AIRCRAFT WITH NATIONALITY AND REGISTRATION MARKS 5N-GAA OPERATED BY GREEN AFRICA AIRWAYS LIMITED WHICH OCCURRED AT GENERAL TUNDE IDIAGBON INTERNATIONAL AIRPORT, (DNIL) ILORIN NIGERIA ON 24 JULY 2024**

<b>Operator:</b>	Green Africa Airways Limited, Nigeria
<b>Aircraft type and model:</b>	ATR 72-212A (600)
<b>Manufacturer :</b>	ATR-GIE Avions de Transport Régional, France
<b>Year of manufacture:</b>	2012
<b>Nationality and registration marks:</b>	5N-GAA
<b>Serial number:</b>	1057
<b>Location:</b>	Runway 05, General Tunde Idiagbon International Airport (DNIL), Ilorin
<b>Date and Time:</b>	24 July 2024 at about 12:02 h (All times in this report are local time, equivalent to UTC+1 unless otherwise stated)

## **INTRODUCTION**

The Nigerian Safety Investigation Bureau (NSIB) was notified of the occurrence by the Nigerian Airspace Management Agency (NAMA) on 24 July 2024. Investigators were dispatched to examine the aircraft the same day. They commenced post-occurrence assessments under the provisions of Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2023 and ICAO Annex 13.



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This report aims to provide details of the initial facts, discussions, and findings surrounding the occurrence. It includes information gathered from witness statements, evidence, and a preliminary aircraft inspection.

**The investigation is ongoing.**



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## 1.0 FACTUAL INFORMATION

### 1. History of the flight

On 24 July 2024, an ATR 72-600 aircraft, with nationality and registration marks 5N-GAA, operated by Green Africa Airways Limited (GAAL), was scheduled to conduct a passenger flight from Murtala Muhammed International Airport (DNMM), Lagos, consisting of six sectors; Lagos-Benin-Abuja-Ilorin-Abuja-Benin-Lagos with the same crew.

The aircraft took off from Lagos to Benin at 06:58 h and arrived at 07:40 h. It then departed Benin for Abuja at 08:27 h and landed at 09:29 h. The aircraft left Abuja at 10:33 h and landed in Ilorin at 11:20 h. The first officer conducted a post-flight inspection of the aircraft at Ilorin and found it okay.

At 11:36:40 h, 5N-GAA with call sign GWG45D requested engine start from the General Tunde Idiagbon International Airport (DNIL) Ilorin Tower for the flight to Nnamdi Azikiwe International Airport (DNAA), Abuja, for Flight Level (FL) 150. Engine start was approved at 11:36:49 h.

At 11:55:30 h, GWG45D requested taxi clearance to Runway 05 and was cleared by DNIL tower to taxi and backtrack Runway 05. At 11:56:35 h, while taxiing, the aircraft received clearance to Abuja via airway J232 on FL 150, which was acknowledged. While at the runway threshold, a departure briefing was conducted, and takeoff clearance was received from DNIL Tower. Onboard were 71 persons, including two flight and two cabin crew members with three-hour endurance under Instrument Flight Rules (IFR). The captain was the Pilot Monitoring (PM), and the first officer was the Pilot Flying (PF).



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At 12:01:30 h, GWG45D lined up for takeoff on Runway 05. During the takeoff, the PM called out, “70 kts...V1...rotate...positive rate...gear up.” GWG45D departed Ilorin to Abuja with an estimated arrival time of 44 minutes. DNIL Tower instructed GWG45D to report two-way contact with the Kano Area Control Centre (ACC), which was acknowledged.

Personnel of GAAL's ground-handling company reported to GAAL's Ilorin station manager that an object was observed rolling off the aircraft during the takeoff.

At 12:13 h, 35 nm from ILR VOR, GWG45D reported two-way contact with ACC while passing FL110. Abuja Radar was then contacted at 12:17:09 h.

At 12:23 h, the operator relayed information about the object that rolled off the aircraft to Ilorin Tower. The runway and its immediate vicinity were inspected, but none was recovered.

At 12:52:09 h, Abuja Radar cleared GWG45D for the approach to Runway 22 and was advised of rain overhead the station.

At 12:52:27 h, GWG45D established contact with the DNAA tower and was cleared to land on Runway 22 with surface wind from 110° at 18 kts and a wet runway. The autopilot was disengaged at about 100 ft Radio Altitude (RA).

The aircraft landed at 12:57:34 h, 1222 m from the threshold of Runway 22, past exit A3. The crew noted the aircraft's tendency to veer left and extended the landing roll to slow the aircraft before exiting the runway at A6, 1780 m from the touchdown point.

At 13:00:18 h, GWG45D contacted DNAA Ground Control and was instructed to taxi via taxiway Bravo 2 to the apron and report the Marshaller in sight. The aircraft reported the Marshaller in sight and was instructed to continue with the Marshaller. GWG45D was parked




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at the Domestic Apron when ground personnel notified the crew of a missing nose wheel. The occupants disembarked normally.

GWG45D notified the airfield operations officers on duty at DNAA of the wheel detachment, and a combined team of Nigerian Airspace Management Agency (NAMA) and Federal Airports Authority of Nigeria (FAAN) was dispatched to inspect the runway and its immediate vicinity. The inspection turned out negative for the wheel.

Flight activities at DNIL continued after the initial search was negative for any FOD. At 13:44 h, a DA-42 trainer aircraft reported sighting a metallic object around Link 1. A runway search was conducted, and the wheel spacer from the left nose wheel assembly of 5N-GAA was recovered.

The incident occurred at 12:02 h in daylight under 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	67	71	Nil
<b>TOTAL</b>	4	67	71	Nil

### **1.3 Damage to aircraft**

The aircraft was slightly damaged.

### **1.4 Other damage**

Nil

### **1.5 Personnel information**

#### **1.5.1 Pilot (Captain)**

Nationality:	Nigerian
Age:	40 years
Licence type:	Airline Transport Pilot Licence (Aeroplane)
Licence validity:	Valid till 15 March 2025
Aircraft ratings:	ATR 42/72-600/400
Medical certificate:	Valid till 19 November 2024
Instrument rating:	Valid till 19 June 2025
Total flying time:	3800 h
Total on type:	2100 h
Total on type (PIC):	220 h
Last 90 days:	142 h
Last 28 days:	76 h
Last 7 days:	16 h
Last 24 hours:	4 h

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**1.5.2 Co-pilot (First officer)**

Nationality:	Nigerian
Age:	32 years
Licence type:	Commercial Pilot Licence (Aeroplane)
Licence validity:	Valid till
Aircraft ratings:	ATR 42/72, EMB 135/145
Medical certificate:	Valid till 22 November 2024
Instrument rating:	Valid till 16 May 2025
Total flying time:	3204.8 h
Total on type:	1737 h
Last 90 days:	171:55 h
Last 28 days:	78:32 h
Last 7 days:	15:57 h
Last 24 hours:	4:00 h

**1.5.3 Engineer**

Nationality:	Nigerian
Age:	46
Licence type:	Aircraft Maintenance Engineer's Licence
Aircraft ratings:	TB-9, ATR 42-400/500/72-212A, Boeing 737 CL, Fokker F-100

During the post-occurrence interview, the engineer stated that the wheel assembly was determined to be free of axial play prior to the job being certified. Subsequent inspections, including those on 23 and 24 July 2024, showed no anomaly.

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## 1.6 Aircraft information



**Figure 1:** Parked 5N-GAA at NAIA

### 1.6.1 General information

Type:	ATR 72-212A (600)
Manufacturer:	ATR-GIE Avions de Transport Régional, France
Year of manufacture:	2012
Serial number:	1057
Operator:	Green Africa Airways Limited, Nigeria
Registration number:	5N-GAA





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Certificate of Airworthiness:	Valid till 20 June 2025
Certificate of insurance:	Valid till 14 September 2024
Certificate of registration:	Issued 31 May 2021
Noise certificate:	Issued 31 May 2021
Airframe time:	15485:37 h
Total Landing Cycles:	14656

The ATR72-600 is a high-winged, twin-turbo propeller engine aircraft capable of carrying 72 to 78 passengers. Its takeoff distance (at maximum takeoff weight in standard atmospheric conditions) is 1315 m, and its landing distance is 915 m.

The nose wheel assembly, consisting of two wheels, was installed on 17 July 2024. After installation, the aircraft underwent 62 landing cycles.

The 750 Flight Hours (1A-Check) routine inspection on 5N-GAA was accomplished on 23 July 2024 at the Nestav Hangar, DNMM.

The No. 2 Wheel Brake Assembly was replaced on the morning of 24 July 2024. Prior to the first flight of the day, the aircraft was certified to have passed the daily inspections in accordance with GAA-ATR-LC-REV 00.

A self-locking nut was observed to have shown signs of axial play upon replacing the nose wheel assembly after the occurrence. The nut was from the same batch as that installed prior to the wheel detachment. The batch was quarantined, and a nut was subsequently sourced from a different batch; the newly installed nut has yet to show signs of axial play.

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**Figure 2: Lock-nut**

**1.6.2 Engines**

<b>Engine</b>	<b>Number 1</b>	<b>Number 2</b>
Manufacturer	Pratt & Whitney, USA	Pratt & Whitney, USA
Type/Model	PW127M	PW127M
Serial number	PCE-ED0064	PCE-ED580
Time Since New	30609:16	28718:34
Cycles Since New	32850	25178

Fuel Used: Jet A1

### 1.6.3 Propeller

Propeller	No. 1	No.2
Manufacturer	Hamilton Sundstrand	Hamilton Sundstrand
Type/Model	568F-1	568F-1
Hours	15063:29	15069:52

### 1.7 Meteorological information

The meteorological conditions for DNIL, as received from the Nigerian Meteorological Agency (NiMet), were as follows:

DNIL	10:00 Z	11:00 Z	12:00 Z
Wind	220/05	Calm	Calm
Visibility	10 Km	10 Km	10 Km
Weather	Nil	Nil	Nil
Cloud	BKB 010	BKN 300	BKN300
Temp/Dew	24°C/21°C	24°C/22°C	24°C/22°C
QNH	1019 hPa	1018 hPa	1017 hPa

### 1.8 Aids to navigation

The status of the navigational aids at DNIL on the day of the occurrence was as follows:

"ILR" DVOR/DME	112.3 MHz	- 'On test basis'
"IIL" ILS/DME	109.9 MHz	- 'Serviceable'
NIMET WX computer		- 'Serviceable'
Aerodrome rotating Beacon		- 'Serviceable'




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ALDIS Lamp & AFL Display	- 'Serviceable'
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The status of the navigational aids at DNAA on the day of the occurrence was as follows:

"ABC" VOR/DME	116.3 MHz	- 'Serviceable'
"IAB" ILS/DME	109.3 MHz	- 'Serviceable'
"IAC" ILS/DME	111.9 MHz	- 'Serviceable'
MSSI Wind Indicator		- 'Unserviceable'
Aerodrome Beacon		- 'Serviceable'
Radar & FPL Monitor		- 'Serviceable'
ALDIS Lamp & AFL Display		- 'Serviceable'

### 1.9 Communication

The status of the communication equipment at DNIL on the day of the occurrence was as follows:

VHF 119.6 MHz on JOTRON Frequency	- 'Serviceable'
VHF 121.7 Mhz on PAE Frequency	- 'Serviceable'
VHF Walkie Talkie	- 'Serviceable'
VHF Digital Console	- 'Unserviceable'
Intercom and mobile phone	- 'Serviceable'
Panasonic Automotive phone	- 'Serviceable'
SATCOM	- 'Unserviceable'

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The status of the communication equipment at DNAA on the day of the occurrence was as follows:

VHF 118.6 Mhz Tower Primary Frequency	- 'Serviceable'
VHF 118.6 MHZ Tower Secondary Frequency	- 'Serviceable'
VHF 127.9 MHZ App/Radar Primary Frequency	- 'Serviceable'
VHF 119.8 MHZ App/Radar Secondary Frequency	- 'Serviceable'
VHF 121.9 MHZ Ground Frequency	- 'Serviceable'
VHF 127.05 MHZ ATIS Frequency	- 'Serviceable'
VHF 121.5 MHZ Emergency Frequency	- 'Serviceable'

There was effective communication between 5N-GAA and Air Traffic Controllers at DNIL and DNAA.

### **1.10 Aerodrome information**

The General Tunde Idiagbon International Airport (DNIL), Ilorin, with aerodrome reference point 08°26'24" N, 004°29'38" E and elevation 1126 ft, is located 9 km southwest of Ilorin city. It has a bidirectional runway designated 05/23, a length of 3100 m, and a width of 60 m. The airport serves scheduled domestic flights and seasonal international pilgrimage flights. It is also the training hub for an Approved Training Organisation (ATO).

The Nnamdi Azikiwe International Airport, Abuja (DNAA), has aerodrome reference points 09°00'25"N, 007°15'47"E, and elevation 1123 ft, with runway orientation 04/22. The runway has a length of 3610 m and a width of 45 m, an asphalt/concrete surface, and a blast pad of 65 m at both ends.

### 1.11 Flight recorders

The aircraft is fitted with a Solid-State Flight Data Recorder (FDR) and a Cockpit Voice Recorder (CVR) with the following particulars:

<b>Recorders</b>	<b>Flight Data Recorder</b>	<b>Cockpit Voice Recorder</b>
<b>Manufacturer</b>	L3 Comm, USA	L3 Comm, USA
<b>Model</b>	SSFDR	SSCVR
<b>Part Number</b>	2100-4045-00	2100-1020-02
<b>Serial Number</b>	000810968	000820145

The FDR and CVR were retrieved and downloaded at the Transportation Safety Laboratory of the Nigerian Safety Investigation Bureau (NSIB) in Abuja, Nigeria.



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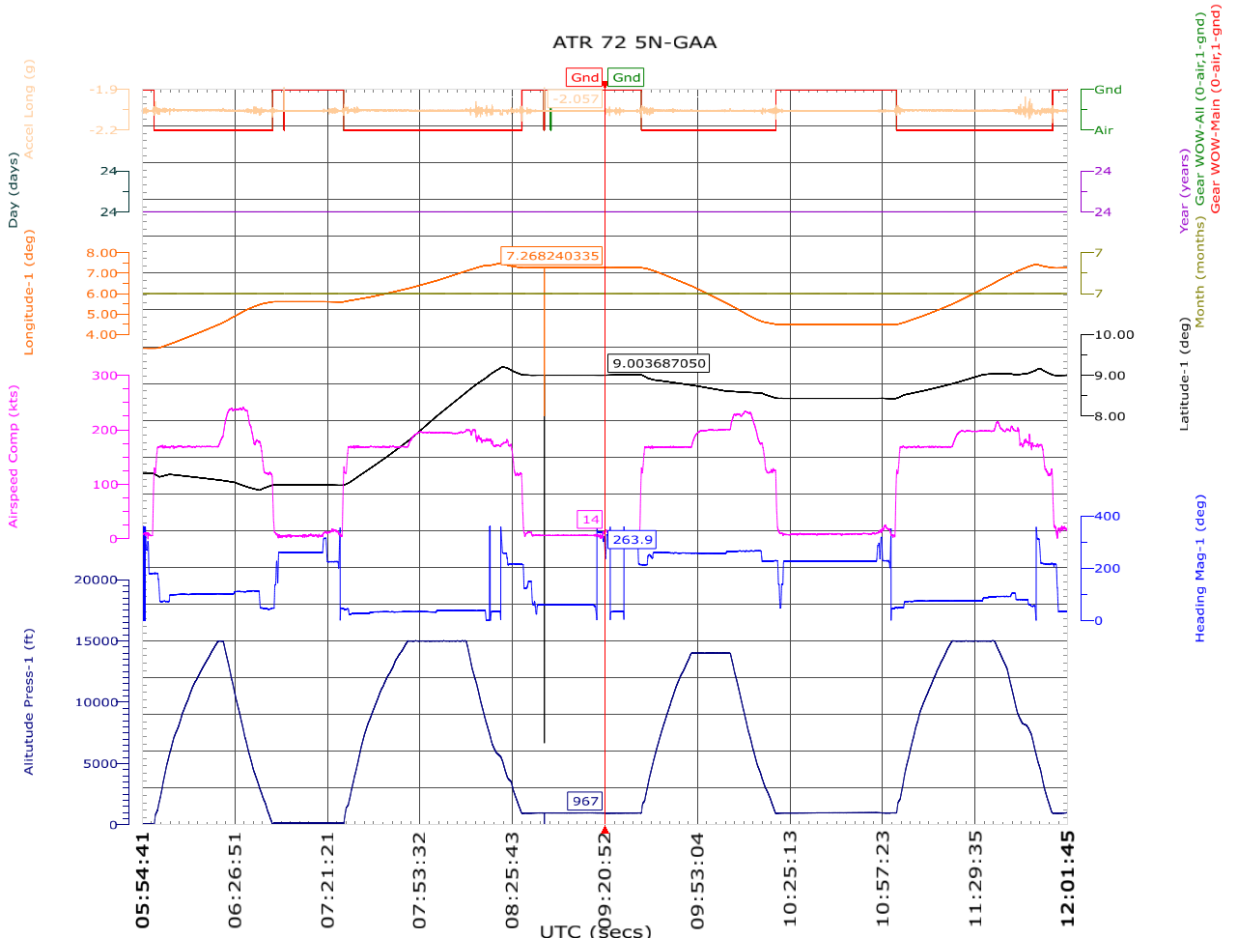
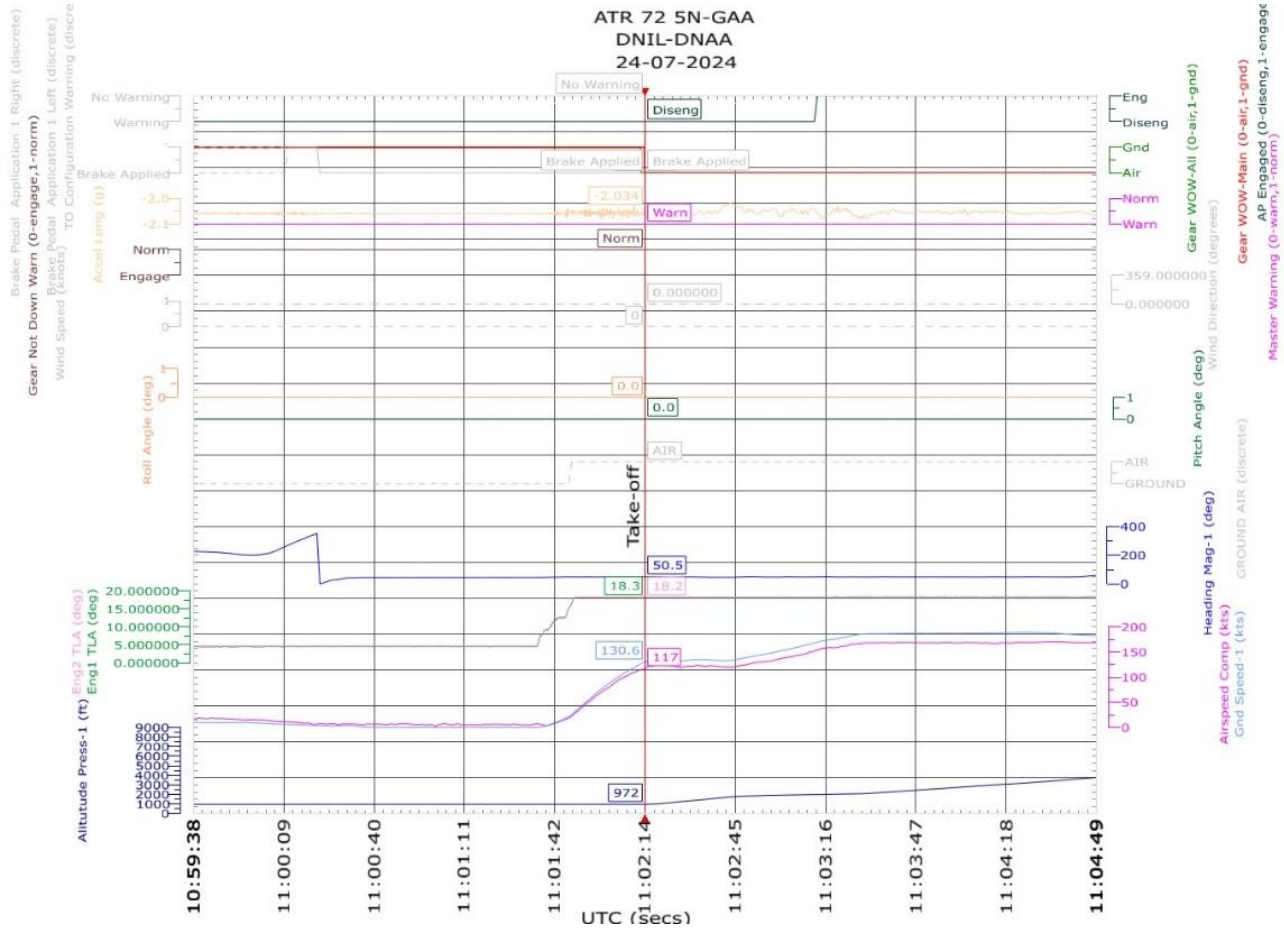


Figure 3: Profile of flights on the 24 July, 2024



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**Figure 4:** Pertinent flight parameters at takeoff from DNIL

**1.12 Wreckage and impact information**

The left wheel of the Nose Landing Gear (NLG) was detached from the axle and has yet to be recovered. The wheel spacer was recovered near Link 1 at DNIL.





**Figure 5:** Nose wheel assembly of 5N-GAA post-occurrence



**Figure 6:** Nose wheel assembly of 5N-GAA



**Figure 7:** Right wheel of the NLG

### **1.13 Medical and pathological information**

No medical or toxicological tests were conducted.

### **1.14 Fire**

There was no fire.

### **1.15 Survival aspect**

The incident was survivable.

### **1.16 Test and research**

Nil.

### **1.17 Organizational and management information**

#### **1.17.1 Green Africa Airways Limited**

Green Africa Airways Limited is an operator based in Ikeja, Lagos. The Nigerian Civil Aviation Authority issued it an Air Operator Certificate (AOC) with the number GAA/AOC/08-21/001. It conducts scheduled and charter flights with a fleet of 3 ATR 72-600 aircraft, one of which was on maintenance, and flies to 9 domestic destinations.

Below are some of the immediate safety actions taken by GAAL:

1. Isolation of the batch of safety nuts that was initially installed.
2. A duplicate inspection post nose wheel installation is required.
3. Additional inspections of the nose wheel during pre-flight and turn-around.



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## 2.0 INITIAL FINDINGS

1. The flight crew were certified to conduct the flight.
2. The aircraft had a valid Certificate of Airworthiness.
3. The nose wheel assembly, consisting of two wheels, was installed on 17 July 2024.
4. The aircraft underwent 62 landing cycles from the installation of the nose wheel assembly.
5. The 750 Flight Hours (1A-Check) routine inspection was accomplished on 23 July 2024 at the Nestav Hangar at Murtala Muhammed International Airport (DNMM).
6. Prior to the first flight of the day, the aircraft was certified to have passed the daily inspections in accordance with GAA-ATR-LC-REV 00.
7. A piece of the wheel assembly was observed to have detached during the takeoff roll at General Tunde Idiagbon International Airport (DNIL).
8. The aircraft was observed to veer left during the landing roll, and the landing roll was extended to bleed its speed before departing the runway.
9. The flight crew learned of the nose wheel detachment after parking at DNAA.
10. A wheel spacer from the nose wheel assembly was recovered at the General Tunde Idiagbon International Airport (DNIL).
11. The detached nose wheel and hardware accessories are yet to be recovered.
12. A hardware component from the same batch installed on the aircraft on 17 July 2024 was found defective after a few landings.



### **3.0 FURTHER INVESTIGATIONS**

1. Recovery and examination of the missing wheel and hardware components.
2. Metallurgical analysis of samples from the batch of self-locking nuts initially installed.
3. Visitation and interviews at General Tunde Idiagbon International Airport (DNAA), Ilorin
4. Visitation and interviews at Green Africa Airways Limited offices and Nestav hangar facilities.