AIRCRAFT ACCIDENT REPORT

AERO/2015/07/21/F

Accident Investigation Bureau

Report on the Serious Incident involving Aero Contractors Nig. Ltd Boeing 737-42C aircraft with Registration 5N-BOB, which occurred on Runway 18L, Murtala Muhammed Airport, Lagos, Nigeria on 21st July, 2015

This report was produced by the Accident Investigation Bureau (AIB), Murtala Muhammed Airport, Ikeja, Lagos.

The report is based on the investigation carried out by the 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 2016.

In accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of aircraft accident/serious incident investigations to apportion blame or liability.

Readers are advised that the Accident Investigation Bureau investigates for the sole purpose of enhancing aviation safety. Consequently, AIB reports are confined to matters of safety significance and should not be used for any other purpose.

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

Safety Recommendations in this report are addressed to the Regulatory Authority of the State (NCAA). This Authority ensures enforcement.

Printed in Nigeria for the Accident Investigation Bureau (AIB)

TABLE OF CONTENTS

TABLE OF FIGURES

GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT

AIB	Accident Investigation Bureau
AMO	Approved Maintenance Organization
AMP	Approved Maintenance Programme
AMSL	Above Mean Sea Level
ATC	Air Traffic Control
ATOM	Air Traffic Operation Manager
ATPL	Airline Transport Pilot Licence
BKN	Broken Cloud
CBs	Cumulonimbus Clouds
CMM	Component Maintenance Manual
CPL	Commercial Pilot Licence
CRM	Crew Resource Management
CSN	Cycle Since New
GPS	Global Positioning System
hPa	Hectopascal
IFR	Instrument Flight Rules
ILS	Instrument Landing System
NAMA	Nigeria Airspace Management Agency

NAVAIDS	Navigational Aids
NCAA	Nigerian Civil Aviation Authority
Nig.CARs	Nigerian Civil Aviation Regulations
NIMET	Nigerian Meteorological Agency
PIREP	Pilots' Report
SOP	Standard Operating Procedure
TSN	Time Since New
UTC	Universal Time Coordinated
QNH	The Atmospheric Pressure at Mean Sea Level
VOR	Very High Frequency Omnidirectional Radio Range

Aircraft Accident Report No.:	AERO/2015/07/21/F
Registered Owner and Operator:	Aero Contractors Company of Nigeria Limited
Aircraft Type and Model:	Boeing 737-42C
Manufacturer:	Boeing Aircraft Company, USA
Date of Manufacture:	1991
Registration Number:	5N-BOB
Serial Number:	24232
Location:	Runway 18L, Murtala Muhammed Airport, Lagos
Date and Time:	21st July, 2015 at about 15:10hrs *All times in this report are local time, equivalent to UTC+1 unless otherwise stated*

SYNOPSIS

Accident Investigation Bureau (AIB) was notified of the occurrence on 21st July 2015 through a phone call from Lagos ATC. Investigators were dispatched to the location same day. All relevant stakeholders were notified.

On 21st July 2015 at 15:10hrs, a Boeing 737-42C aircraft belonging to Aero Contractors Nigeria Limited with registration 5N-BOB departed Murtala Muhammed Airport for Nnamdi Azikiwe International Airport, Abuja with call sign NIG127. It was a scheduled flight, operating on an Instrument Flight Rules with five crew members and one hundred and forty-one (141) passengers onboard.

At 15:14hrs, the aircraft was given radar vector by Approach Radar to resume own navigation and set course at "IBA". Thereafter, it was handed over to Area Control. The aircraft was identified North-East of LAG and cleared to proceed direct ILGAM and climb to Flight Level (FL) 330. NIG127 responded, requesting to maintain FL130 for the time being.

According to the crew report, while the aircraft was climbing through FL060; the Lead Crew called the cockpit to alert the Captain that a passenger noticed a "tear" on the right wing. The First Officer went to the cabin to confirm and reported to the Captain that part of the right Inboard Ground Spoiler had ripped off. At this point, the Captain decided to return to Lagos.

At 15:18hrs, NIG127 reported an observation on one of her wings and requested an air return for runway 18R.

At 15:28hrs, the Tower cleared the aircraft to land.

At 15:31hrs, the aircraft landed safely on runway 18R. The Captain stated that on landing, there was severe vibration during the landing roll at high speed, and that the vibration stopped at taxi speed. Another aircraft taxiing to the holding point of runway 18R reported an observation to the Tower, that 5N-BOB had one of its tyres damaged. This information was relayed to the crew of 5N-BOB after exiting the runway.

The aircraft was stopped at Taxiway A and the engines were shut down. The crew and passengers disembarked safely using the exit door as normal. The aircraft sustained substantial damage to No. 4 main wheel, right ground spoiler and the leading edges of the horizontal and vertical stabilizers.

At 17:20hrs, the aircraft No. 4 main wheel was replaced on the taxiway before it was towed to Aero Contractors hangar at General Aviation Terminal (GAT).

The incident happened in daylight.

Causal Factor

The cause of the serious incident could not be conclusively determined. However, the investigation identified the following factors:

i. The condition of the runway as reported by landing aircraft prior to the occurrence, revealed cracks and potholes.

ii. The reported crack abeam Link 4 of runway 18L was the site of tyre debris after the departure of NIG127 (5N-BOB).

Two Safety Recommendations were made.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

On 21st July 2015 at 15:10hrs, a Boeing 737-42C aircraft belonging to Aero Contractors Nigeria Limited with registration 5N-BOB departed Murtala Muhammed International Airport for Nnamdi Azikiwe International Airport, Abuja with call sign NIG127. It was a scheduled flight, operating on an Instrument Flight Rules with five crew members and one hundred and forty-one (141) passengers onboard.

At 14:56hrs the Tower gave start-up clearance to the aircraft followed by taxi clearance to runway 18L. The Tower cleared the aircraft for take-off with a right turn to establish on Heading 330°. At 15:10hrs the aircraft was airborne and handed over to Approach Radar. At 15:14hrs, the aircraft was given radar vector by Approach Radar to resume own navigation and set course at "IBA". Thereafter, it was handed over to Area Control.

At 15:16hrs, Area Control identified the aircraft North-East of LAG and cleared it to proceed direct ILGAM and climb to Flight Level (FL) 330. NIG127 responded, requesting to maintain FL130 for the time being.

According to the crew report, while the aircraft was climbing through FL060; the Lead Crew called the cockpit to alert the Captain that a passenger noticed a "tear" on the right wing. The First Officer went to the cabin to confirm and reported to the Captain that part of the right Inboard Ground Spoiler had ripped off. At this point, the Captain decided to return to Lagos.

At 15:18hrs, NIG127 reported an observation on one of her wings and requested to return to Lagos for runway 18R and the aircraft was transferred back to Approach Radar (Air-Return). NIG127 was identified and cleared to LAG to expect radar vectors. At 16NM North of LAG, NIG127 was cleared for ILS Approach runway 18R.

At 15:28hrs, the aircraft was transferred to Tower, and subsequently cleared to land.

At 15:31hrs, the aircraft landed safely on runway 18R and there was a PIREP from GHN111 concerning a damaged tyre on 5N-BOB. The PIREP was relayed by Tower to the crew of NIG127 after exiting the runway. The captain stated that on landing, there was severe vibration during the landing roll at high speed, and that the vibration stopped at taxi speed.

The aircraft was stopped at Taxiway A and the engines were shut down. The crew and passengers disembarked safely using the normal entry door.

The incident happened in daylight.

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	Nil
None	5	141	146	Nil
Total	5	141	146	Nil

1.3 Damage to Aircraft

The aircraft was substantially damaged.

1.4 Other Damage

Nil.

1.5 Personnel Information

1.5.1 Pilot (Pilot Flying)

Nationality:	Ghanaian
Gender:	Male
Age:	44 years
Licence No.:	4843 (ATPL)
Licence Validity:	2nd April, 2019
Aircraft Ratings:	B737-200/300/400/500
Medical Validity:	24th September, 2015
Instrument Rating Validity:	22nd March, 2016
Simulator Validity:	22nd September, 2015
Proficiency Check:	22nd September, 2015
Total Flying Time:	6785:36hrs
Total On Type:	4911.6hrs
Last 90 Days:	142.2hrs
Last 28 Days:	56.1hrs
Last 24 Hours:	4.25hrs

1.5.2 Co-pilot (Pilot Monitoring)

Nationality:	Nigerian
Gender:	Male

Age:	31 years
Licence No.:	4803 (ATPL)
Licence Validity:	5th June, 2019
Aircraft Ratings:	B737-500/400; B58; TB20
Medical Validity:	29th September, 2015
Instrument Rating Validity:	18th September, 2015
Simulator Validity:	13th September, 2015
Proficiency Check:	13th September, 2015
Total Flying Time:	2423hrs
Total on Type:	2100hrs
Last 90 Days:	92hrs
Last 28 Days:	62hrs
Last 24 Hours:	4.25hrs

1.6 Aircraft Information

1.6.1 General Information

Type:	Boeing 737-42C
Manufacturer:	Boeing Aircraft Company, USA
Year of Manufacture:	1991
Serial No:	24232
Registration Number:	5N-BOB
C of A Validity:	3rd October, 2015
Certificate of Insurance:	30th June, 2016
Certificate of Registration:	13th April, 2012
Noise Certificate:	25th April, 2012
Category:	Transport

Airframe Time:	48661:32hrs

1.6.2 Powerplant

Engine Model:	**CFM 56**
No. 1:	**CFM 56-3C-1**
Serial No.:	724502
TSN:	53428:54hrs
CSN:	41049
Year of Manufacture:	1990
No. 2:	**CFM 56-3C-2**
Serial No:	724850
TSN:	50394:18hrs
CSN:	34536
Year of Manufacture:	1990

Fuel Type Used: Jet A-1

1.7 Meteorological Information

Time:	**1300 UTC**
Wind:	240/10 KTS
Visibility:	10km
Weather:	Nil
Cloud:	BKN 420m
Temp/Dew:	30/22^{o}C
QNH:	1013 hPa

1.8 Aids to Navigation

All navigational aids were serviceable at the time of the incident.

1.9 Communications

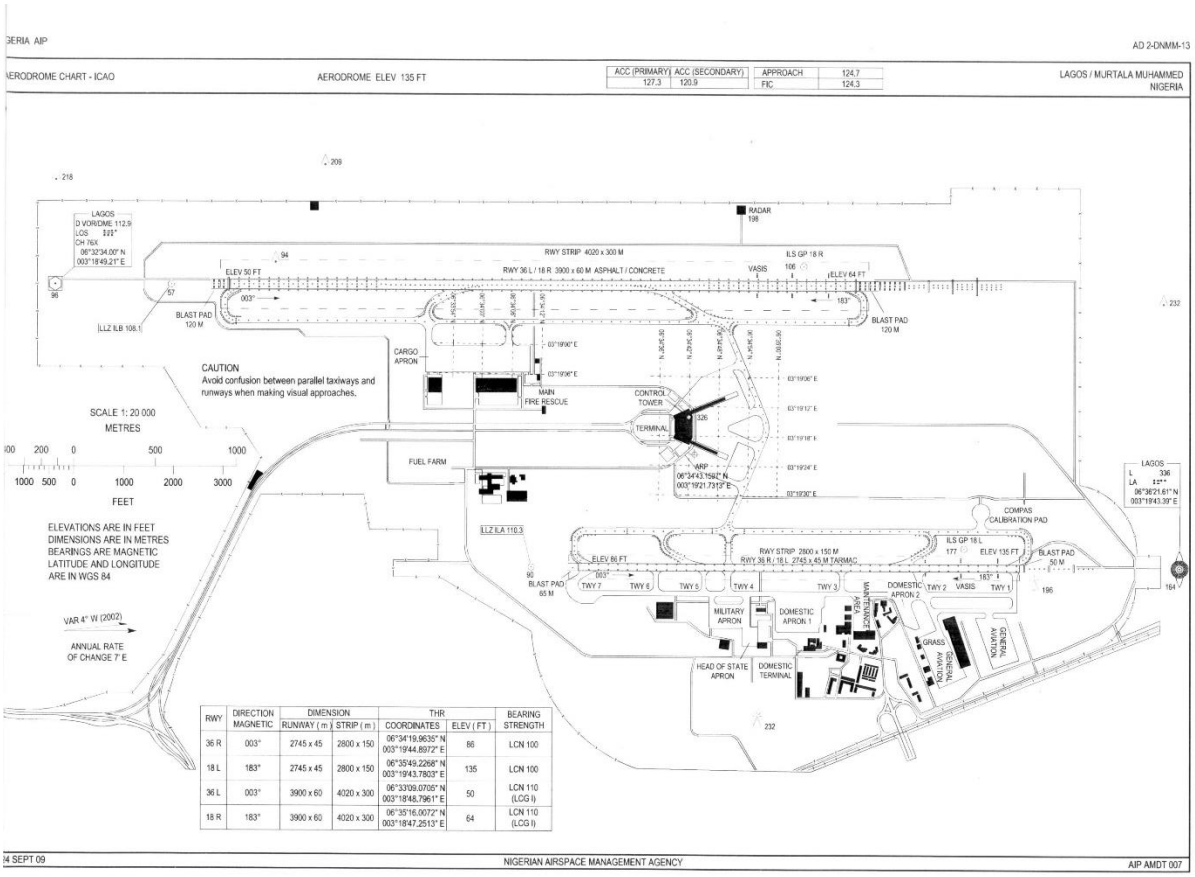
There was two-way communication between the aircraft and Air Traffic Control (ATC).

1.10 Aerodrome Information

The Murtala Muhammed Airport with location indicator DNMM has two runways with designations 18R/36L and 18L/36R.

Runway 18L/36R has a dimension of 2745m by 45m. The Aerodrome Reference Point is 06°34'43"N 003°19'44"E while the elevation is 138ft. Runway 18R/36L has a dimension of 3900m by 60m. Aerodrome Reference Point is 06°33'09"N 003°18'48"E while the elevation is 65ft.

Link 4 is located at the southern end of Runway 18L/36R, along the take-off path. Runway inspection was carried out by ATC inspection team at 08:20hrs on the day of the occurrence. The second inspection was carried out by the ATOM and his team to inspect the reported crack abeam link 4 on runway 18L at 14:07hrs after which the runway was subsequently closed between 14:07hrs and 14:55hrs.



RWY	DIRECTION MAGNETIC	DIMENSION RUNWAY (m)	DIMENSION STRIP (m)	THR COORDINATES	THR ELEV (FT)	BEARING STRENGTH
36 R	003°	2745 x 45	2800 x 150	06°34'19.9635" N 003°19'44.8972" E	66	LCN 100
18 L	183°	2745 x 45	2800 x 150	06°35'49.2268" N 003°19'43.7803" E	135	LCN 100
36 L	003°	3900 x 60	4020 x 300	06°33'09.0705" N 003°18'48.7961" E	50	LCN 110 (LCG I)
18 R	183°	3900 x 60	4020 x 300	06°35'16.0072" N 003°18'47.2513" E	64	LCN 110 (LCG I)

Figure 1: Layout of the runway (Aeronautical Information Publication)

1.11 Flight Recorders

The aircraft is equipped with Flight Recorders but neither were retrieved nor downloaded after the occurrence.

1.12 Wreckage and Impact Information

The aircraft sustained substantial damage to the following;

- RH Landing Gear Door,

- RH Inboard Ground Spoiler which severed into two pieces (with a piece that flew off in flight),
- No 4 Main Wheel Tyre,
- Wheel well doors,
- A deep dent on the Right Horizontal Stabilizer leading edge, and,
- Multiple dents on the skin of the Right Vertical Stabilizer.

See Figures 1 to 6 below.

Figure 2: Damage to the leading edge of horizontal stabilizer

Figure 3: Damage to No. 4 Main landing gear strut and doors

Figure 4: Damage to No. 4 Main landing gear struts and doors

Figure 5: Damage to the edges of the Vertical/Horizontal Stabilizers

Figure 6: Damage to the wheel well doors

Figure 7: The missing section of the right wing

Figure 8: A portion of the ground spoiler

Figure 9: Damage to tyre of No. 4 Main landing Gear

1.13 Medical and Pathological Information

No medical or pathological tests were carried out on the crew.

1.14 Fire

There was no fire.

1.15 Survival Aspect

This occurrence was survivable and the crew operated the aircraft to a safe landing, taxied and parked. Though the damage to the aircraft was substantial, both the airframe and engine were intact. The passengers disembarked safely from the aircraft.

1.16 Test and Research

Not Applicable.

1.17 Organizational and Management Information

1.17.1 Aero Contractors Company of Nigeria Limited

Aero Contractors Company of Nigeria Limited is a registered airline operator incorporated in 1959 which operates both rotary and fixed wing services. It provides scheduled fixed wing passenger services to various Nigerian domestic airports and international destinations in the West African sub-region. Its operational base is at Murtala Muhammed Airport (MMA) General Aviation Terminal (G.A.T), Ikeja, Lagos.

Aero Contractors also has Approved Maintenance Organization (AMO) capability.

The AMO approval covers Component Maintenance for landing gear components amongst others. The Workshop Capability List for landing gear components includes coverage for Goodrich Corporation main wheel assembly with Part Number 3-1484.

1.17.1.1 Excerpts from Component Maintenance Manual (CMM)

The investigation revealed that No.4 Main Wheel change had been carried out prior to the incident flight.

The inspection procedure for wheel change is outlined in the CMM for Part No. 3-1484, Section 32-45-03. ***See Appendix A***

1.17.2 Nigerian Airspace Management Agency (NAMA)

Air Traffic Control Service (ATCS), presently referred to as Air Traffic Management (ATM) is one of the most important services provided by NAMA.

Air Traffic Control Service (ATCS) is a service provided for the purpose of preventing collisions between aircraft; on the manoeuvring area, between aircraft and obstructions; and to expedite and maintain an orderly flow of air traffic. ATCS is sub-divided into area control service, approach control service and aerodrome control service.

Visual observation from a Tower constitutes the primary method of controlling air traffic on the ground and in close proximity of an airport. The Tower is a tall, windowed structure that offers the air traffic controllers a panoramic view covering the airport and its surroundings. Aerodrome controllers - or "tower controllers" - are responsible for the separation and efficient movement of aircraft and vehicles operating on the taxiways and runways of the airport, as well as for aircraft in the air in the vicinity of the airport.

The areas of responsibility for Air Traffic Services (ATS) fall into three general operational disciplines: Ground Control, Tower Control and Approach Control.

Ground Control is responsible for the airport "movement" areas. These include all taxiways, holding areas, and some manoeuvring areas or intersections where aircraft arrive after having left the runway or the departure gates. Efficient ground control is vital to smooth airport operations because, on top of his most important mission which is to

ensure the safety of ground movements, the ground controller is responsible for optimising the order in which the aircraft are sequenced to depart at the runway threshold, and this in order to accelerate the take-off rhythm.

The Controller is in charge of the movements on the runways as well as for the air traffic in the vicinity of the airport. He clears aircraft for take-off or landing, thereby ensuring that the assigned runway is clear for the foreseen manoeuvre.

According to NAMA, at 14:07hrs runway 18L was closed temporarily to assess a crack and a pothole abeam Link 4 reported by landing aircraft.

1.18 Additional Information

The ATC Watch log indicated that the crew of 5N-MAB, a Medview aircraft that arrived after NIG127 was airborne from runway 18L, reported at 15:20hrs that there was debris on the runway. Subsequently, the Tower closed the runway for inspection and inbound traffic were cleared for approach to runway 18R.

1.19 Useful or Effective Investigation Techniques Used

Nil.

2.0 ANALYSIS

2.1 Conduct of the Flight

On 21st July 2015, at 15:10hrs a Boeing 737-42C aircraft belonging to Aero Contractors Nigeria Limited with registration 5N-BOB departed Murtala Muhammed International Airport, Lagos for Nnamdi Azikiwe International Airport, Abuja. It was the fifth flight of the day.

The aircraft had been duly released to service after all checks in the company's B737 daily inspection had been accomplished. The checks included an inspection of the exterior surfaces as well as tyre pressures.

The aircraft was granted taxi and take-off clearance by ATC. The take-off roll and take-off were conducted without any observation or report of an abnormal condition either by the crew or ATC. During climb out and on reaching FL060, a passenger called the attention of the cabin crew to an observation that a portion of the right wing was missing. This prompted the Captain to instruct the first officer to confirm the observation. The missing portion of the wing was identified by the first officer to be a section of the ground spoiler. Thereafter, the decision to make an air return was made.

The No. 4 main wheel tyre was found damaged upon inspection, after the aircraft landed. The damage to the ground spoiler and other parts of the aircraft may have been caused by impact from fragments of rubber from the blown tyre.

The damage to the ground spoiler could have occurred at some point during the take-off roll or just after lift-off; while the faulty wheel was still in the extended position, suggesting that the abnormal condition of the No. 4 tyre had not been noticed during the taxi or take-off roll.

The crew did not report any malfunction of the landing gear either during retraction on take-off, or on extension for landing after the air return.

2.2 Aerodrome Control

In the course of the investigation, the Bureau observed that there was movement of persons around/on the runway after the Controller gave clearance to NIG127 to line up for departure, as captured on the ATC transcript. The Captain said, "confirm we are cleared holding point RWY 18L Link 1" and "cause we have some people on the RWY sir that's why we are asking". The response of the Controller to the crew was casual, thus: "NIG127 you were given clearance to 18L link 1 brother" and when the Controller asked the crew to confirm if the people were still on the Taxiway, the Controller responded by saying "he's a madman on the prowl, we'll soon catch them."

The conduct of the Controller indicated that he did not regard the situation to be as critical as reported by the crew of NIG127. The Watch log showed that at the time of the report, the Air Traffic Operation Manager (ATOM) and several personnel were on the runway conducting an inspection into an earlier reported case of a crack abeam Link 4. The Controller had therefore cleared NIG127 for take-off before the inspection team vacated the runway.

2.3 Wheel/Tyre Assembly Maintenance

The AMO had a valid certificate at the time of the occurrence. The main wheel P/N 3-1484 is covered in the Landing gear Components Maintenance Capability List. The NDT certifications of the NDT workshop personnel were also current.

The investigation revealed that the No. 4 main wheel tyre S/N 0148 had been replaced due worn out, on the 13th of June 2015, with a tyre S/N 0511. NDT inspection as required by the Goodrich CMM 32-45-03 was carried out. The tyre S/N 0148 had served a total of 161 airframe hours. The new tyre S/N 0511 was in use on the incident flight and as at the time of the incident, had served 219.92 hours.

Daily inspections are carried out by line engineers during pre-flight inspection to check tyre conditions including visual inspections and tyre pressure. The records also show that the tyre had been checked and its pressure confirmed normal on the day of the incident.

According to the CMM, wheel inspections are required whenever:

1. The tyre is replaced or,
2. The tyre inflation pressure decreases in the wheel and tyre assembly.

NDT inspections are required on each wheel after a number of tyre changes.

Records available to the Bureau show that this had been carried out on the main wheel P/N 3-1484 and S/N 0511, and it was released to service on 5th June 2015.

The records available to AIB in the course of the investigation also revealed that in a 1-year period from 1st July 2014 to 30th July 2015, the minimum and maximum number of cycles were 44 and 300 respectively. It could therefore be inferred that No. 4 main wheel tyre was still within its operational cycle.

2.4 Aerodrome Standards/Runway contamination

According to the Tower Watch Log, runway 18L was closed at 14:06hrs on the day of the occurrence due to operational reasons. A crack had been reported abeam Link 4 of the runway and NAMA officials were assigned to access the crack and pothole. The runway was subsequently reopened at 14:55hrs.

At 15:20hrs, 5N-BOB departed from runway 18L, after which the runway was closed again due to a report by a Medview aircraft with registration 5N-MAB that was cleared and landed on the same runway, of tyre debris on the runway. The tyre debris according to the report were located abeam Link 4 of runway 18L.

This is also the area at which a crack was reported, and for which the runway had been initially closed.

5N-BOB was the first aircraft cleared to use runway 18L after the inspection of the reported crack at Link 4. It can be reasonably deduced that the tyre debris found on the runway afterwards came from the aircraft, and hence the No. 4 main wheel had sustained damage during the taxi or take-off roll.

3.0 CONCLUSIONS

3.1 Findings

1. The aircraft had a valid Certificate of Airworthiness.
2. The crew were qualified to conduct the flight.
3. Runway 18L was closed at 14:07hrs for a reported crack and pothole inspection.
4. Runway 18L was re-opened at 14:55hrs.
5. NIG127 was the first flight on runway 18L after the opening of the runway.
6. At 15:20hrs, Medview aircraft, 5N-MAB reported tyre debris on runway 18L abeam Link 4.
7. Runway 18L was closed again to clear the runway of the tyre debris.
8. At 15:18hrs, NIG127 requested for an air-return from Lagos Control to runway 18R after reporting an observation made on the right wing.
9. At 15:31hrs, the aircraft landed safely on runway 18R.
10. After engine shutdown, the crew and passengers were safely disembarked on Taxiway "A" using the normal entry door.
11. Ghana Airways GHN111 was taxiing to holding point on runway 18R just as NIG127 was landing. The crew of GHN111 observed the damage to No. 4 main wheel of NIG127 and reported same to the Tower.
12. The crew did not report any malfunction of the landing gear during retraction on take-off.
13. The damage to the tyre did not affect the retraction and extension of the landing gear.

3.2 Causal Factor

The cause of the serious incident could not be conclusively determined. However, the investigation identified the following factors:

i. The condition of the runway as reported by landing aircraft prior to the occurrence, revealed cracks and potholes.

ii. The reported crack abeam Link 4 of runway 18L was the site of tyre debris after the departure of NIG127 (5N-BOB).

4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2018-005

FAAN should endeavour to improve coordination with NAMA for the proper monitoring of runway inspections and other runway activities.

4.2 Safety Recommendation 2018-006

NAMA should coordinate with FAAN during the investigation of all reports of runway conditions/incursions and should also inform NCAA of all such occurrences.

APPENDIX

APPENDIX A: Excerpts from Goodrich Component Maintenance Manual

GOODRICH CORPORATION
COMPONENT MAINTENANCE MANUAL
Part Number 3-1484

CHECK

TASK 32-45-03-200-801-A01

1. General

A. Reason for the Job

Self-explanatory

B. Job Set-up Information

Not applicable

C. Job Set-up

Not applicable

D. Procedure

Subtask 32-45-03-210-001-A01

(1) Inspection Intervals

(a) If a thermal relief plug melted and released tire pressure, do the overheated wheel inspections in this CHECK section. Do these inspections before you do the scheduled inspections.

(b) If a wheel was overloaded or shows indications of overload, do the overloaded wheel inspections in the CHECK section. Do these inspections before you do the scheduled inspections. Discard a wheel half that has indications that it rolled on the runway.

Possible causes for an overloaded wheel include:
- A hard landing or off-runway excursion.
- A fully inflated wheel is overloaded when the other wheel on the same axle has near-zero inflation pressure (25 percent or less of aircraft OEM inflation pressure).
- The two wheels on the same axle are overloaded when each wheel has near-zero inflation pressure (25 percent or less of aircraft OEM inflation pressure).

(c) Do the TIRE CHANGE INSPECTIONS in Table 5001 at each tire change. Also, do the ADDED INSPECTIONS at the intervals in Table 5002 or more frequently.

The inspection intervals are calculated as follows: 1500 (landings between NDT inspections) divided by 250 (landings between tire changes) = 6 (number of tire changes between ADDED INSPECTIONS).

UTC AEROSPACE SYSTEMS PROPRIETARY 32-45-03 Page 5001 Dec 17/15

U.S. Export Classification: EAR 9E991
Printed copies are considered UNCONTROLLED - Verify current issue before use

GOODRICH CORPORATION
COMPONENT MAINTENANCE MANUAL
Part Number 3-1484

CHECK

If the aircraft has more landings or less landings between tire changes, adjust the intervals for the ADDED INSPECTIONS.
Example: 1500 ÷ 300 = 5 tire changes between ADDED INSPECTIONS

If you do not know the total number of tire changes for a wheel assembly, do the TIRE CHANGE INSPECTIONS and the ADDED INSPECTIONS at the intervals in Table 5001.

Refer to all pages in this CHECK section for inspection procedures.

GOODRICH CORPORATION
COMPONENT MAINTENANCE MANUAL
Part Number 3-1484

CHECK

(d) Inspection Intervals

TABLE 32-45-03-99A-501-A01

Inspections at Each Tire Change - Table 5001

INSPECTION TYPE	PART DESCRIPTION
DISCARD	O-rings (85, 120, 195) (If Removed)
VISUAL	All Areas of Wheel Halves (180, 265)
	Torque Lugs (Inserts [245] Not Removed)
	Tie Bolts (100)
	Tie Bolt Washers (95)
	Tie Bolt Nuts (90)
	Inserts (245) (Not Removed)
	Bearing Parts (25, 30, 170, 255)
	Valve Stem (70) (Removed)
	Thermal Relief Plugs (190) (Not Removed)
	Overinflation Plug (115) (Removed)
	O-rings (60, 110, 117)
	Heat Shields (225) (Not Removed)
	Grease Seals (15, 20)
	Retaining Rings (5, 10)
	Grease Retainers (175, 260)
	Disk Alignment Bracket (235)
	Bracket Assembly (50)
	Heli-Coil® Inserts (165, 250)
	Nut (40)
	Washer (45)
	Screw (35)
MEASUREMENT	Spacer (105)
	Torque Lugs (If Drive Inserts [245] Removed)
	Retaining Rings (5, 10)
NDT	Bead Seat

NOTE: If additional parts are removed, do the visual inspection for the removed parts.

GOODRICH CORPORATION
COMPONENT MAINTENANCE MANUAL
Part Number 3-1484

CHECK

TABLE 32-45-03-99A-502-A01

Added Inspections Intervals - Table 5002

INSPECTION TYPE	PART DESCRIPTION	ADDED INSPECTIONS (Refer to NOTE)
DISCARD	O-rings (85, 120, 195)	X
	Screws (240)	X
VISUAL	Torque Lugs (Inserts [245] Removed)	X
	Nuts (130, 150, 200)	X
	Washers (135, 155, 215)	X
	Bolts (140)	X
	Screws (145, 220, 230)	X
	Balance Weights (160, 205)	X
	Inserts (245) (Removed)	X
	Thermal Relief Plugs (190) (Removed)	X
	Heat Shields (225) (Removed)	X
MEASUREMENT	Inserts (245) (Removed)	X
	Torque Lugs (Drive Inserts Removed)	X
NDT	All Areas of Wheel Halves (180, 265)	X
	Tie Bolts (100)	X

NOTE: At tire change 24, do NDT inspections of wheel halves and at each 3rd tire change (27, 30, 33, etc.) there after, do the ADDED INSPECTIONS. If the time since the last ADDED INSPECTIONS is more than 2 years, do the ADDED INSPECTIONS now.

If the aircraft has more or less landings between tire changes, calculate the intervals for the ADDED INSPECTIONS [refer to paragraph 1.D.(1)(c)]. If you find corrosion around these parts, remove the parts at smaller intervals.

APPENDIX B: Tyre Pressure Inspection Records for 5N-BOB on 21st July 2015

ACN DAILY TYRE PRESSURE RECORD DATE: 21/07/2015

ITEM 121500 00001 OF B737 DAILY INSPECTION AND FOR DASH 8s

A/C REG & TYRE	TYRE PRESSURE (P.S.I.)								C/O BY
5N-BJA/B737/400	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No.3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BIZ/B737/400	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No.3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BPQ/B737/400	NOSE	No. 1 167	No. 2 170	Main	No. 1 215	No. 2 215	No.3 215	No. 4 215	Fitter
	CORRECTED	~~YES~~ NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	
5N-BPR/B737/400	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No.3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BOB/B737/400	NOSE	No. 1 166	No. 2 170	Main	No. 1 215	No. 2 215	No.3 215	No. 4 215	Fitter
	CORRECTED	~~YES~~ NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	
5N-BOC/B737/400	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No.3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BQL/B737/400	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No.3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BKR/B737/500	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No. 3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BKQ/B737/500	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No. 3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BLC/B737/500	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No. 3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BLD/B737/500	NOSE	No. 1 168	No. 2 168	Main	No. 1 212	No. 2 209	No. 3 212	No. 4 212	Fitter
	CORRECTED	~~YES~~ NO	~~YES~~ NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	
5N-BLE/B737/500	NOSE	No. 1	No. 2	Main	No. 1	No. 2	No. 3	No. 4	Fitter
	CORRECTED	YES NO	YES NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	LAE
5N-BLG/B737/400	NOSE	No. 1 170	No. 2 170	Main	No. 1 212	No. 2 212	No. 3 212	No. 4 212	
	CORRECTED	~~YES~~ NO	~~YES~~ NO	CORRECTED	YES NO	YES NO	YES NO	YES NO	