

PRELIMINARY REPORT ON SERIOUS INCIDENT INVOLVING AN MD-82 AIRCRAFT OPERATED BY DANA AIRLINES LIMITED WITH NATIONALITY AND REGISTRATION MARKS 5N-BKI, WHICH OCCURRED ON RUNWAY 18L MURTALA MUHAMMED INTERNATIONAL AIRPORT, LAGOS ON 23 APRIL 2024

Registered operator:	Dana Airlines Limited
Aircraft type and model:	McDonnell Douglas MD-82
Manufacturer:	Boeing McDonnell Douglas
Year of manufacture:	1996
Nationality and registration marks:	5N-BKI
Serial number:	53542
Location:	Runway 18L, Murtala Muhammed International Airport, Lagos 6°34'32"N, 3°19'46"E
Date and time:	23 April 2024 at about 09:37:43 h. <i>(All times in this report are local time (UTC+1) unless otherwise stated)</i>

INTRODUCTION

The Federal Airports Authority of Nigeria (FAAN) notified the Nigerian Safety Investigation Bureau (NSIB) of this occurrence via phone call on 23 April 2024. NSIB contacted the operator, and investigators were dispatched the same day to the occurrence site. The NSIB commenced investigation into the circumstances of the occurrence under the provisions of Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2023 and Annex 13 to the Convention on International Civil Aviation.

This preliminary report provides details of initial facts, discussions, and findings surrounding the occurrence. It also 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 23 April 2024 at 08:20 h, an MD-82 aircraft with nationality and registration marks 5N-BKI, operated by Dana Airlines Limited as DAN0352, departed Nnamdi Azikiwe International Airport, Abuja (DNAA), for Murtala Muhammed International Airport, Lagos (DNMM). On board were 89 persons, including six crew members, with a fuel endurance of about 2 hours and 50 minutes. The Captain was the Pilot Monitoring (PM), while the First Officer was the Pilot Flying (PF).

At about 08:37 h, DAN0352 was airborne and climbed to FL300, its cruising level as cleared from DNAA.

At about 09:20 h, after Descent Out of FL300, DAN0352 was handed over to Lagos Tower, reported its position as 13 miles on the Localizer runway (RWY) 18L and was instructed by the Tower to continue its Approach. The Crew stated that the flight from DNAA was routine until during Approach when DAN0352 was in contact with Tower and was cleared for ILS on RWY 18L.

On the Final Approach to RWY 18L, the PF called for "GEAR DOWN", and the PM selected landing gears "DOWN". According to the First Officer, "We got two green lights and one red light, the red being the Nose Landing Gear (NLG) Indication." The crew stated that they recycled the Landing Gears by selecting UP and then DOWN, but the NLG Indication Light remained RED. The crew then proceeded with the EMERGENCY GEAR EXTENSION Checklist, but again, the NLG indication RED Light remained.

At 09:23 h, DAN0352 informed Tower of its intention to execute a Go-Around. At 09:24 h, while executing the Go-Around, DAN0352 did a LOW PASS over the station and requested the Duty Air Traffic Controller (DATCO) to check if the NLG was down. The DATCO responded, "It appears down."



At 09:25 h, DAN0352 contacted Approach Control requesting to be vectored for another Approach. Approach Control then enquired about the reason for the Go-Around, to which the crew responded, "We just had an indication here, so we just want to verify everything is okay, but at this moment, we look good, and we are going to try another Approach to RWY 18L." The crew stated in the post-occurrence interview that they consulted the MD82 Quick Reference Handbook (QRH) and carried out the QRH items.

At 09:30 h, Approach Control cleared DAN0352 for an ILS Approach RWY 18L. At 09:33 h, DAN0352 contacted Tower, reporting 9 miles Touchdown RWY 18L, and was given weather information: DNMM 0800UTC; Wind 350o/05 kt runway 18L, cleared to land caution runway surface damp. As the crew selected the Landing Flap position, the Landing Gear Configuration Warning came ON and continued until the aircraft touched down.

At about 09:38 h, DAN0352 touched down runway 18L. According to the Captain, the landing was smooth, and the speed brakes did not deploy during the landing roll, so the Captain lowered the nose landing gear on to the runway, then selected the spoilers – ON, followed by thrust reversers. At this point, the crew stated that severe vibration was accompanied by a loud noise from the NLG area. On reaching 80 knots, the Captain noticed the collapse of the NLG, followed by a loss of directional control, as the aircraft veered off to the left and exited the runway at about 2,094 m from the threshold. It continued in the grass verge, crossed the paved Link 6 and stopped at about 2,343 m from the threshold, about 36 m from the runway centerline.

Upon the final stop of the aircraft, the Captain selected both "Thrust levers - OFF" and Emergency Power - ON" then commanded evacuation. Main Entry Door did not open, so the Cabin Crew opened the Forward Service Door, and the Escape Slide was deployed. All occupants evacuated without injury.

At about 09:41 h, the Tower contacted Ground Control, which activated the Aerodrome Rescue and Fire Fighting Services (ARFFS). According to the crew, ARFFS vehicles were sighted taking positions around the aircraft during evacuation.

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



Figure 1: DAN0352 at its Final Stop Position



Figure 2: Track of Wheels on Grass Verge

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
Total	6	83	89	Nil

1.3 Damage to aircraft

The aircraft was slightly damaged.

1.4 Other damage

Nil.

1.5 Personnel information

1.5.1 Captain

Nationality:	Venezuelan
Age:	64 years
Licence type:	Airline Transport Pilot Licence (Aeroplane)
Licence:	Valid till 3rd October 2024
Aircraft ratings:	Aeroplane: Single engine/Multi-engine MD-80
Medical certificate:	Valid till 3rd October 2024
Simulator:	Valid till 24th September 2024
Instrument rating:	Valid till 24th March 2025
Proficiency check:	On 25th March 2024
Total flying time:	22,232 h
Total on type:	5,828 h
Total on type (PIC):	5,828 h
Last 90 days:	12:33 h
Last 28 days:	12:33 h
Last 24 hours:	2:41 h

1.5.2 First Officer

Nationality:	Nigerian
Age:	22 years
Licence type:	Commercial Pilot Licence (Aeroplane)
Licence:	Valid till 15th November 2024
Aircraft ratings:	Aeroplane: Single-engine, Multi-engine MD-80, EMB-135/145
Medical certificate:	Valid till 15th November 2024

5N-BKI

Simulator: Valid till 18th September 2024
Instrument rating: Valid till 18th March 2025
Proficiency check: On 19th March 2024
Total flying time: 517 h
Total on type: 394 h
Last 90 days: 56 h
Last 28 days: 56 h
Last 24 hours: 2:41 h

1.5.3 Engineer

Nationality: Nigerian
Age: 45 years
Licence type: Aircraft Maintenance Engineer Licence (AMEL)
Licence validity: Valid till 2nd March 2027
Aircraft ratings: MD-80/82/83, B737-300/400/500

1.5.4 Purser

Nationality: Nigerian
Age: 34 years
Licence type: Cabin crew
Licence validity: 26th April 2025
Aircraft ratings: MD 80/83, B737-300/500

1.6 Aircraft information

1.6.1 General information

Type: MD-82 (DC9-82)
Manufacturer: Boeing McDonnell Douglas
Date of manufacture: 26th July 1996
Serial number: 53542



5N-BKI

Registered operator: Dana Airlines Ltd.
 Registration number: 5N-BKI
 Certificate of airworthiness: Valid till 1st May 2024
 Certificate of insurance: Valid till 30th April 2024
 Certificate of registration: Issued 14th May 2014
 Noise certificate: Issued 9th October 2014
 Airframe time: 19,068.30 h
 Cycles since new (CSN): 22,543

1.6.2 Engines

Engine	Number 1	Number 2
Manufacturer	Pratt & Whitney, USA	Pratt & Whitney, USA
Year of manufacture		1986
Engine model	JT8D-217C	JT8D-219C
Serial number	P728111D	P716747
Time since new	14,589:24 h	54,822:45 h
Cycles Since New	16,575	33,955
Time run since overhaul	3,955:25 h	

Fuel type used: Jet A-1

1.7 Meteorological information

METAR DNMM

Time: 800UTC
 Wind: 320/09kts
 Visibility: 4,000 km
 Weather: TSRA
 Cloud: 1,800ft FEW CB (CB-N-N-NW)
 Temperature: 23/23oC
 QNH: 1014 hPa
 Trend: 3,000 m

1.8 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"

1.9 Communications

There was effective communication between the crew and the Air Traffic Services.

1.10 Aerodrome information

Murtala Muhammed International Airport (MMIA) has two parallel runways: RWY 18L/36R, which is 9,006 ft (2,745 m) long, and 18R/36L, which is 12,795 ft (3,900 m) long. It is located at an elevation of 135 ft and has a coordinate of N06° 34'43.1298", E03° 19'.12'. There are two VORs and one NDB station in MMIA, Lagos. One of the VORs is aligned with the centerline of RWY 18L (113.7 MHz LAG). There are also two ILS/DME installed on RWY 18L (110.3 MHz ILA) and 18R (108.1 MHz ILB), respectively. The runway surfaces are asphalt coated. The ICAO-designated Code is DNMM.

1.11 Flight recorders

The aircraft has a Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR).

RECORDERS	Flight Data Recorder	Cockpit Voice Recorder
Manufacturer	L-3 Aviation Recorders, USA	Honeywell International Inc.
Model	FA2100	SSFDR
Part Number	2100-1020-00	980-4700-001
Serial Number	000501408	2573

The Cockpit Voice Recorder (CVR) has the capability to record four 30 minutes high quality channels and a standard quality 120 minute mixed channel. Both the CVR and FDR were found intact and successfully downloaded at the Nigerian Safety Investigation Bureau's Transportation Safety laboratory in Abuja.



1.12 Wreckage and impact information

The crew stated that on reaching 80 knots during the Landing Roll, the Nose Landing Gear (NLG) collapsed, the aircraft lost directional control, veered off to the left of the runway centreline, and exited the runway at about 2,094 m from the threshold. It continued in the grass verge, crossed the paved Link 6, and came to a stop at about 2,343 m from the threshold of runway 18L, 36 m from the runway centreline.

The aircraft was recovered the same day, towed and parked at a hangar.

The following damage was observed:

1. Distress to lower forward skin
2. The NLG lights were broken.
3. The Galley Drain was deformed.
4. An Antenna was broken.
5. The NLG Wheel Well Aft Door was damaged.



Figure 3: Damaged Galley Drain & Antenna



Figure 4: Damaged nose landing gear light

1.13 Medical and pathological information

Toxicological tests were conducted on the crew. The tests result was negative.

1.14 Fire

There was no fire.



1.15 Survival aspect

The occurrence was survivable, passenger restraint system (seat belts and shoulder harnesses) was intact, and there was livable volume for the occupants.



2.0 INITIAL FINDINGS

1. The flight crew were licensed and certified to conduct the flight.
2. The aircraft had a valid Certificate of Airworthiness.
3. The crew selected the landing gear control lever "DOWN", the Main Landing Gear Indication Lights were GREEN, while the Nose Landing Gear (NLG) Indication Light was RED.
4. The crew stated that the landing Gear lever selection was recycled UP and then DOWN, but the NLG indication remained RED.
5. The crew consulted the QRH and proceeded with the EMERGENCY GEAR EXTENSION checklist, but the NLG Indication Light remained RED.
6. The crew executed a LOW PASS over the station during the Go-Around and requested the ATC check if the Nose Landing Gear was extended. ATC responded, "It appears to be down."
7. Upon landing, the Ground Spoilers did not deploy automatically, according to the crew.
8. During the Landing Roll, the crew stated that there was severe vibration accompanied by a loud noise coming from the Nose Landing Gear area, which remained extended until 80 kts before it collapsed.
9. The Captain commanded evacuation, the cabin crew attempted but could not open the Main Entry Door. As the cabin crew opened the Forward Service Door, the Escape Slide deployed automatically, and the occupants evacuated safely without injury.
10. The crew stated that an emergency was not declared.



IMMEDIATE SAFETY RECOMMENDATIONS.

1. The Nigeria Civil Aviation Authority should ensure Dana Air Limited comply with timely use of Checklist / Quick Reference Handbook particularly at critical phases of flight when dealing with abnormal and emergency situations in line with standard company operating procedures.
2. The Nigeria Civil Aviation Authority should ensure that Dana Air Limited adheres to standard phraseology in communicating indication malfunctions during Abnormal or Emergency operations.
3. The Nigeria Civil Aviation Authority should review Dana Air Limited training program and Standard Operating Procedures with a view to highlighting Crew Resource Management (CRM) and Threat and Error Management (TEM) as tools in management of abnormal or emergency operations.
4. Nigeria Airspace Management Agency should ensure that Air Traffic Controllers always insist on communication of specific malfunction with standard phraseology, in this instance, the use of "indicated system malfunction..." rather than "GEAR DISAGREE".

Further investigative actions

Analysis of the flight recorder recordings

Gathering further evidence/information relating to the occurrence

Inspection and examination of the related aircraft systems and components