



**PRELIMINARY REPORT ON SERIOUS INCIDENT INVOLVING DIAMOND DA42 AIRCRAFT OPERATED BY INTERNATIONAL AVIATION COLLEGE (IAC), ILORIN WITH NATIONALITY AND REGISTRATION MARKS 5N-BNH WHICH OCCURRED AT ILORIN INTERNATIONAL AIRPORT, ILORIN, KWARA STATE ON 1ST MAY, 2019**

<b>Registered Owner and Operator:</b>	International Aviation College (IAC), Ilorin
<b>Aircraft Type and Model:</b>	Diamond DA42
<b>Manufacturer:</b>	Diamond Aircraft Industries GmbH, Austria
<b>Date of Manufacture:</b>	2006
<b>Nationality and Registration Marks:</b>	5N-BNH
<b>Serial Number:</b>	42.010
<b>Location:</b>	Ilorin International Airport, Kwara State  08° 26' 23" N, 004°29' 38" E
<b>Date and Time:</b>	1 <sup>st</sup> May 2019 at about 11:15 h  <i>All times in this report are local time (UTC +1) unless otherwise stated</i>

## **INTRODUCTION**

Accident Investigation Bureau (AIB) was notified of the serious incident by the operator on 1<sup>st</sup> May, 2019. Investigators were dispatched to the site on 2<sup>nd</sup> May, 2019 and commenced post incident assessment under the provisions of Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2016 and ICAO Annex 13.



The purpose of this preliminary report is to provide details of initial facts, discussions and findings surrounding the occurrence. This includes information gathered from witness statements and a preliminary inspection of the incident site and the aircraft.

**The investigation is ongoing.**

## **1.0 FACTUAL INFORMATION**

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

On 1<sup>st</sup> May, 2019, at about 09:00 h, a Diamond DA42 aircraft with nationality and registration marks 5N-BNH owned and operated by International Aviation College (IAC), Ilorin requested for start-up from Air Traffic Control (ATC) for a mock Commercial Pilot Licence (CPL) training exercise. An altitude of 6,500 ft was requested and granted by the control tower.

At about 09:13 h, 5N-BNH was airborne from runway 23 Ilorin International Airport to Sector One Charlie (1C). There were two persons on board; a flight instructor and a student pilot with fuel endurance of five hours. At 09:28 h, 5N-BNH reported established at Sector One Charlie (1C).

At 10:13 h 5N-BNH reported flight details completed at One Charlie and requested to re-join the airfield for an RNAV (Area Navigation) Approach for Runway 05. The Tower cleared the aircraft to report overhead 'ILR'.

At 10:18 h, Tower cleared the aircraft to descend to 3,500 ft and for RNAV Approach Runway 05, requesting 5N-BNH to report established.

At 10:23 h, 5N-BNH reported established eight miles final Runway 05, requested for, and was cleared for missed approach. At 10:49 h, 5N-BNH reported Procedure Turn Complete. Shortly afterwards, the crew requested clearance for touch-and-go, and to join downwind Runway 05. 5N-BNH was cleared for touch-and-go and was airborne at 10:59 h. On this circuit, the flight instructor instructed the student pilot to do a flapless landing.

At 11:02 h, 5N-BNH was cleared for touch-and-go on Runway 23 due to a change in wind direction. Two additional touch-and-go exercises were carried out between 11:05 h and 11:09 h.

At 11:09 h, the Flight Instructor took control of the aircraft, to demonstrate a flapless approach and landing to the student pilot. He extended the upwind due to traffic.

At 11:12 h, the aircraft 5N-BNH reported right downwind Runway 23, requesting full stop landing and was granted.

The Flight Instructor reported that on reaching final, he selected the landing gear switch to extend the landing gear. He noted that the switch knob came off in his hand while he did this. He replaced the knob and continued the approach. Just before touch down, the landing gear warning came up. The Student Pilot reported that she attempted to extend the gear. However, the aircraft impacted the ground, coming to rest on the bottom edge of the engine cowlings, the stairs, the tail skid and the partially extended nose wheel gear.

At 11:15 h, the aircraft touched down with gears up on the runway centreline at a distance of 1,387 m from the threshold, veered to the right of the runway centerline and came to a stop 205m from the touchdown point.

The Flight Instructor called the duty air traffic controller to notify him of the incident. The ATC alerted the fire service unit of the incident. The occupants disembarked the aircraft unaided without injuries. The Airport Rescue and Fire Fighting Services (ARFFS) arrived at the site about five minutes after notification.

The incident occurred in daylight and Visual Meteorological Conditions prevailed.

## 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	Not applicable
<b>None</b>	2	Nil	2	Not applicable
<b>TOTAL</b>	2	Nil	2	Not applicable

## 1.3 Damage to aircraft

The aircraft was substantially damaged.

## 1.4 Other damage

Nil.

## 1.5 Personnel Information

### 1.5.1 Flight Instructor

Nationality:	Nigerian
Age:	29 years
License Type:	CPL (A)
License Validity:	7th March, 2020
Medical Validity:	23rd September, 2019

Ratings:	DA-40, DA-42
Instrument Rating Endorsement:	Single and Multi-Engine Aeroplane or Rotorcraft having MTWA of 5700kg or less and in respect of type rating (s) specified in part 1.
Total Flight Time:	905.6 h
Hours on Type:	120.9 h
Last 90 days:	124 h
Last 28 days:	49.6 h
Last 24 Hours:	02.10 h

### **1.5.2 Student Pilot**

Nationality:	Nigerian
Age:	26 years
License Type:	PPL (A)
License Validity:	7th May, 2018
Medical Validity:	4th October, 2019
Ratings:	Not Applicable
Hours on Type:	Not Applicable
Last 90 days:	23:13 h
Last 28 days:	23:13 h
Last 24 Hours:	01:12 h

### **1.5.3 Aircraft Engineer**

Nationality:	Nigerian
Age:	29 years
Licence Type:	AMEL
Licence Validity:	2021
Ratings:	Tampico TB-9, Diamond DA40 & 42, Lycoming O-320-D2A Engine

## **1.6 Aircraft Information**

### **1.6.1 General information**

Manufacturer:	Diamond Aircraft Industries GmbH, Austria
Model:	DA 42
Serial No:	42-010
Year of manufacture:	2006
Nationality and Registration marks:	5N-BNH
Owner/Operator:	International Aviation College
Total airframe time:	2,316:35 h
Total landing cycle:	N/A
Certificate of Airworthiness:	29th January, 2020
Certificate of Insurance:	1st August, 2019

## 1.7 Meteorological Information: DNIL

### Time: 09:00 h

Wind: 200/08 kt  
Visibility: 10 km  
Weather: Nil  
Cloud: SCT 300 m  
Temp/Dew: 28°C/24°C  
QNH: 1013 hPa

### Time: 11:00 h

Wind: 180/10 kt  
Visibility: 10 km  
Weather: Nil  
Cloud: SCT 330 m  
Temp/Dew: 30°C/24°C  
QNH: 1014 hPa

## 1.8 Aids to Navigation

Ilorin International Airport is equipped with very high frequency omni-directional radio range (VOR) and an instrument landing system (ILS). Also, precision approach landing system category II was installed on the runway.

Onboard the aircraft are relevant maps, approach plates that aid navigation.



## **1.9 Communication**

There was effective two-way communication between the aircraft and the Control Tower.

## **1.10 Aerodrome Information**

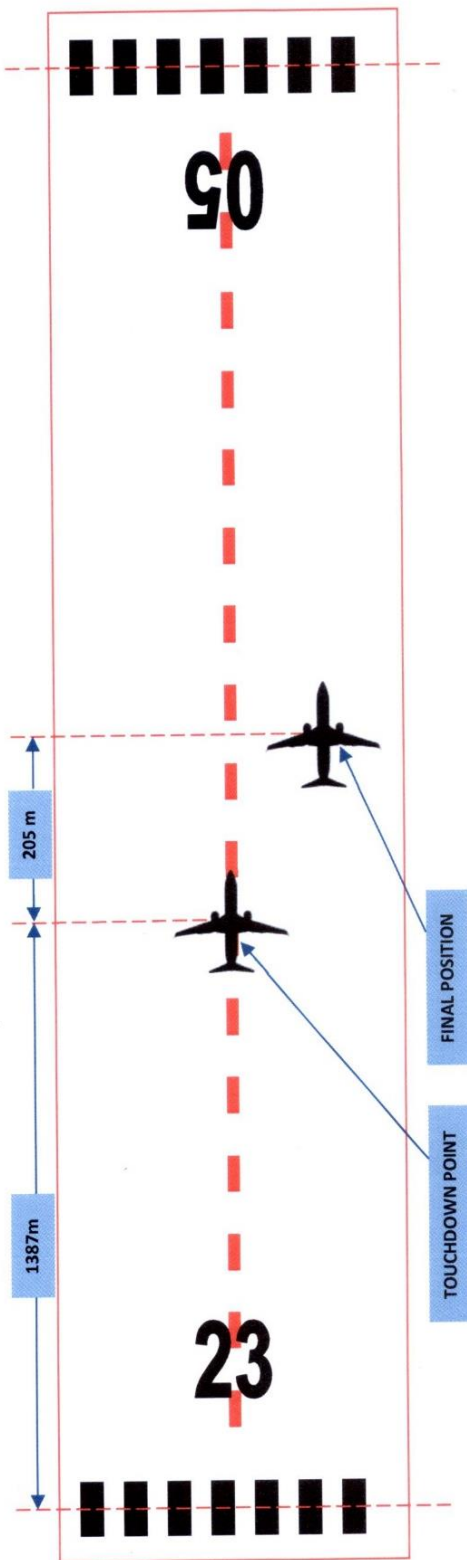
Ilorin International Airport, Ilorin, Kwara State (DNIL) has Aerodrome Reference Point 08° 26' 23" N, 004° 29' 38" E midpoint of runway. The aerodrome has a runway with orientation of 05/23. The length and width of the runway are 3,100m and 60m respectively, with an asphalt/concrete surface and blast pads of 120m at both ends.

## **1.11 Flight Recorders**

The aircraft is not equipped with a flight data recorder or cockpit voice recorder. Neither recorder was required by the relevant aviation regulations.

## **1.12 Wreckage and Impact Information**

5N-BNH touched down on its engine cowlings (landing gears up) at a distance of 1,387 m from the threshold runway 23 with the nose in the direction of runway heading and made a final stop at distance of about 205 m from the touchdown point. Although the aircraft was relatively in one piece, the left and right stairs were found chopped off, the base of the engine cowling and exhaust as well as the tail skid were abraded, and all the propeller blades were broken.



**Figure 1:** The schematic diagram of the position of aircraft after belly landing



**Figure 2:** Photo showing the base of engine cowling and exhaust after the incident



**Figure 3:** The tail skid of aircraft touching the runway



**Figure 4:** Final position of 5N-BNH on runway 23



**Figure 5:** The nose-wheel door opened and tyre protruding





**Figure 6:** Skid marks made by 5N-BNH on runway 23



**Figure 7:** Broken Left and Right stairs

### **1.13 Medical and Pathological Information**

The flight crew disembarked from the incident aircraft without injury, were taken to a hospital, examined and certified fit. Toxicology test was carried out on the crew and the result was found to be negative for drugs.

### **1.14 Fire**

There was no pre or post impact fire.

### **1.15 Survival Aspect**

The structural integrity of the aircraft remained intact after the occurrence hence there was a liveable volume for survival.



**Figure 7:** The cabin after the incident

## **INITIAL FINDINGS**

The investigation so far revealed the following:

1. The crew were licensed and qualified to conduct the flight in accordance with existing regulations.
2. The flight was a Commercial Pilot Licence (CPL) training exercise.
3. The flight instructor was the Pilot Flying at the time of the incident.
4. The two occupants in the aircraft sustained no injury after the serious incident.
5. Toxicology test was carried out on the crew and the result was found to be negative for drugs.
6. The duty air traffic controller's license was not available for sighting.
7. The duty air traffic controller did not observe the aircraft was still on the runway until the crew notified him of the incident.
8. According to ATC download, the duty air traffic controller instructed another aircraft to assist him by taxiing to the area of the incident aircraft to assess the extent of damage or serious injury to the crew.
9. The aircraft had a valid Certificate of Airworthiness.
10. There was no fault found during the pre-flight checks and no uncleared snag on the aircraft techlog.
11. The propeller blades were broken, the left and right stairs were broken and the base of the engine cowling abraded.