

AIRCRAFT ACCIDENT REPORT ATL/2023/07/10/F

Nigerian Safety Investigation Bureau

Final report on the serious incident involving a Hawker 800XP aircraft operated by Aero Tak Limited with nationality and registration marks 5N-JEF which occurred at Nnamdi Azikiwe International Airport Abuja, Nigeria on 10 July 2023.



This report was produced by the Nigerian Safety Investigation Bureau (NSIB), Nnamdi Azikiwe International Airport, Abuja.

The report is based upon the investigation carried out by the Nigerian Safety Investigation Bureau, per Annex 13 to the Convention on International Civil Aviation, Nigerian Safety Investigation Bureau (Establishment) Act, 2022, and Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2023.

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

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

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

Recommendations in this report are addressed to the Regulatory Authority of the State (NCAA). It is for this authority to ensure enforcement.

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GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT

AGL	Above ground level
AMSL	Above mean sea level
APP	Approach control service
ATC	Air traffic control
АТМ	Air Traffic Management
ATPL	Airline Transport Pilot Licence
AV	Aircraft voice
CAE	Canadian Aviation Electronics
СР	Co-Pilot
CPL	Commercial Pilot Licence
CVR	Cockpit voice recorder
DME	Distance measuring equipment
DNAA	Location indicator for Nnamdi Azikiwe International Airport, Abuja
DNGO	Location indicator for Gombe Lawanti International Airport, Gombe



EMB	Embraer
FAA	Federal Aviation Authority
FDR	Flight data recorder
FL	Flight level
ft	Foot (feet)
GS	Ground speed
h	Hour(s)
НАТ	Height above touchdown
hPa	hectoPascal
IAS	Indicated airspeed
ICAO	International Civil Aviation Organization
IFR	Instrument flight rules
ILS	Instrument landing system
IMC	Instrument metrological conditions
IR	Instrument rating



KIAS	Knots indicated airspeed
km	Kilometre(s)
kt	Knot(s)
Lb	Pound(s)
Ltd	Limited liability
m	Meter(s)
MHz	MegaHertz
min	Minute(s)
MLG	Main landing gear
MMO	Maximum operating Mach number
NAMA	Nigerian Airspace Management Agency
NCAA	Nigeria Civil Aviation Authority
NCAT	Nigerian College of Aviation Technology
Nig.CARS	Nigeria Civil Aviation Regulations
NIMET	Nigerian Metrological Agency



NM	Nautical mile(s)
NSIB	Nigerian Safety Investigation Bureau
NTSB	National Transportation Safety Board
PAPI	Precision approach path indicator
PF	Pilot flying
PM	Pilot Monitoring
PNCF	Permit for Non-Commercial Flight
QNH	Altimeter sub-scale setting to obtain elevation when on the ground (pressure setting to indicate elevation above mean sea level)
SARPS	Standards and Recommended Practices
UTC	Coordinated Universal Time
VA	Maneuvering speed
VAPP	Approach speed
VASI	Visual approach slope indicator
VFE	Maximum speed with the flaps/slats extended



VHF	Very high frequency (30 to 300 MHz)
VMO	Maximum operating speed
VOR	VHF omnidirectional radio range
Z	Zulu



Report number:	ATL/2023/07/10/F
Operator:	Aero Tak Limited, Nigeria
Aircraft type and model:	Hawker 800XP
Manufacturer:	Raytheon Aircraft Company, UK
Year of manufacture:	2002
Nationality and registration marks:	5N-JEF
Serial number:	258566
Location:	Runway 22, Nnamdi Azikiwe
	International Airport (DNAA), Abuja
Date and Time:	10 July 2023 at about 22:04 h
	(All times in this report are local
	time, equivalent to (UTC+1)
	unless otherwise stated).

SYNOPSIS

The Nigerian Airspace Management Agency (NAMA) notified the Nigerian Safety Investigation Bureau (NSIB) of the occurrence on 10 July 2023. Investigators were dispatched to the site the same night and commenced post-occurrence assessments under the provisions of Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2019 and ICAO Annex 13.

On 10 July 2023, a Hawker 800XP aircraft operated by Aero Tak Limited with nationality and registration marks 5N-JEF, on a Permit for Non-Commercial Flight (PNCF), operated eight flights from Nnamdi Azikiwe International Airport (DNAA) Abuja to Gombe Airport (DNGO) between 07:00 h and 22:10 h, with a six-hour break between 11:20 h and 17:00 h after the first three flights to Gombe.



5N-JEF departed DNGO on the eighth and final sector at 21:20 h, with the Pilot as Pilot Flying and the Co-Pilot as Pilot Monitoring while conveying 12 persons on board. While on the cruise, the flight crew expressed sentiments of being stressed and subsequently requested and was granted a high-speed descent.

The aircraft's speed was relatively high on approach and at touchdown when directional control was lost, resulting in aircraft damage but no injuries.

Causal factor

Failure to maintain directional control of the aircraft after touchdown following an un-stabilised approach.

Contributory factors

- 1. Inadequate speed management during the execution of the approach
- 2. "Get-home-itis/Press-on-itis" syndrome.

One (1) Safety Recommendation was made.



1.0 FACTUAL INFORMATION

1.1 History of the flight

On 10 July 2023, a Hawker 800XP aircraft with nationality and registration marks 5N-JEF, operated by Aero Tak Limited on a Permit for Non-Commercial Flight (PNCF), was scheduled to operate sectors between Nnamdi Azikiwe International Airport (DNAA), Abuja, and Gombe Airport (DNGO) with the same crew. The operation was to transport company executives to and from an annual event in Gombe. The crew reported that they resumed duty at 06:30 h on the day of the occurrence.

5N-JEF conducted three flights between DNAA and DNGO, starting with the first DNAA – DNGO at 07:10 h—08:20 h, DNGO – DNAA at 08:25 h—09:15 h, and DNAA – DNGO at 10:20 h—11:20 h before the flight crew retired to a guest house.

At 17:00 h, 5N-JEF departed DNGO and arrived DNAA at 18:00 h. Three more flights were conducted from DNAA-DNGO 18:10 h - 19:10 h, DNGO-DNAA 19:15 h - 20:05 h and DNAA-DNGO 20:15 h -21:05 h.

At 21:20 h, 5N-JEF departed DNGO on an Instrument Flight Rules (IFR) flight plan with fuel endurance of three hours on its final leg to Abuja with 12 persons on board, including two crew members. The Captain was the Pilot Flying (PF), and the First Officer was the Pilot Monitoring (PM).

At 21:43:44 h, while on cruise, as the aircraft approached Jos Plateau in weather, the PF uttered the following: 'terrain, stress, night flight, weather, see and avoid, if possible". As ATC requested for the aircraft's current position, the PF expressed a desire to go home and sleep to the PM.

At 21:47:07 h, 5N-JEF was cleared by ATC to waypoint ARDIR, crossed radial 050 at or before 30 NM, and descended to FL 80.

At 21:49:27 h, the PF announced 'high-speed descent" to the PM and expressed the desire to see 'if it was still possible to do it again". At 21:54:28 h, 5N-JEF reported fully established on radial 050, 40 NM while descending from FL 145 to FL 80.

At 21:54:45 h, 5N-JEF was re-cleared to FL 65 and to report 25 NM to the station. 5N-JEF acknowledged and requested a high-speed descent below FL 10. The request was granted. At 21:58:31 h, 5N-JEF established contact with Abuja Approach Control (APP) and was cleared ILS approach runway 22.

At about 10 NM ABC VOR, while established on ILS, with idle thrust, and descending to 3200 ft on QNH 1014 hPa, the crew expressed concern about the aircraft's speed on the final approach and concluded that it was due to a tailwind.

At 22:00:37 h, about 7 NM, 5N-JEF contacted Abuja Tower and was cleared to land on runway 22 with a calm wind.

At 22:02:04 h, the PF called for Landing Checks, and the PM called out the individual items on the checklist and confirmed CHECKS STABLE². The sound of autopilot disengage was captured on the Cockpit Voice Recorder (CVR), and at about 200 ft to touchdown, the PF called out 1_ANDING².

At 22:03:50 h, 5N-JEF touched down on the runway with a ground speed of 140 kt, as indicated on the radar scope. On landing, the aircraft veered to the left of the centre line around link A2 and excursed to the left paved runway shoulder, beyond the runway edge lights. The aircraft re-entered the active runway 186 m from the exit point and veered to the right, stopped making a 140° turn to a magnetic heading north. Both tyres of the left Main Landing Gear were damaged.

At 22:04:09 h, before the call by Tower, the PM commented 'fatigue".

The passengers disembarked normally without injury.

The incident occurred at (22:04 h) in Instrument Meteorological Condition (IMC).



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	2	10	12	Nil
TOTAL	2	10	12	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:	Nigerian
Age:	36
Licence type:	Airline Transport Pilot Licence (Aeroplane)
Licence:	Valid till 13 September 2027
Aircraft ratings:	HS-125/800XP, EMB-135/145
Medical certificate:	Valid till 05 December 2023
Instrument rating:	Valid till 01 June 2024
Proficiency check:	Valid till 25 May 2024
Total flying time:	3500 h
Total on type:	65:48 h
Total on type (PIC):	65:48 h
Last 90 days:	65:48 h
Last 28 days:	65:48 h
Last 24 hours:	07:30 h



On May 26 2023, the Captain completed the HS-125 Model Hawker 800XP 61.157 series Initial Course at Flight Safety International Wichita East Learning Center, USA. On completion of recurrency training on EMB-145 on 02 June 2023, at Flight Safety International, Houston Learning Center, USA, with a total of 3442.6 h, the licence was endorsed on 25 June 2023 by NCAA to Command from PART 2 to PART 1 on both HS-125/800XP and EMB 135/145 aircraft.

On 15 June 2023, the Captain resumed actual flight on the HS-125/800XP as the Pilot In Command.

The Captain stated that the last leg of the flight departed DNGO at about 09:20 h as PF, and the flight was normal, only avoiding some weather activities en route. When the aircraft descended to 8000 ft AMSL, the flight crew decided to carry out a high-speed descent below 10000 ft AMSL, which the ATC approved. The aircraft speed was maintained at about 270 knots IAS during the descent.

1.5.2 First Officer

Nationality:	Nigerian
Age:	41
Licence type:	Commercial Pilot Licence (Aeroplane)
Licence:	Valid till 27 August 2025
Aircraft ratings:	HS-125/800XP
Medical certificate:	Valid till 21 December 2023
Instrument rating:	Valid till 19 August 2023
Proficiency check:	Valid till 19 August 2023
Total flying time:	1900 h
Total on type:	1700 h
Last 90 days:	100 h

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Last 28 days:	30 h
Last 24 hours:	07:30 h

1.6 Aircraft information

1.6.1 General information

Туре:	Hawker 800XP
Manufacturer:	Ratheon Aircraft company, UK
Year of Manufacture:	2002
Serial number:	258566
Certificate of Airworthiness:	valid till 24 February 2024
Certificate of insurance:	Valid till 23 November 2023
Certificate of registration:	Issued 14 July 2021
Total airframe time:	4932:43 h
Total landing circles;	3381





Figure 1

Figure 1: 5N-JEF on the runway post-occurrence

Dispatch information for the last flight prior to departure DNGO

See Appendix 1: (Dispatch sheet)



1.6.2 Powerplant

Engine	Number 1	Number 2
Manufacturer	Garett AiResearch, USA	Garett AiResearch, USA
Type/Model	TFE731-5BR-1H	TFE731-5BR-1H
Serial number	P-107332	P-107102
Time Since New	4916:58	7255:13
Cycles Since New	3615	3256

Fuel Used: Jet A1

1.7 Meteorological information

The following are the Meteorological Reports for Nnamdi Azikiwe International Airport

(DNAA) provided by the Nigerian Meteorological Agency (NiMet) for 10 July 2023.

DNAA	2100 Z	2200 Z	2300 Z
Wind	030°/02 kt	040°/02 kt	070°/03 kt
Visibility	10 km	10 km	10 km
Weather	Nil	Nil	Nil
Cloud	Nil	Nil	Nil
Trend	NOSIG	NOSIG	NOSIG
Temperature/Dew point	26°C/24°C	26°C/24°C	25°C/24°C
QNH	1015 hPa	1015 hPa	1014 hPa



1.8 Aids to navigation

The status of the navigational aids at Nnamdi Azikiwe International Airport 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 Indicate	r	- Serviceable'
Aerodrome Beacon		- Serviceable'
Radar & FPL Monito	r	- Serviceable '
ALDIS Lamp & AFL	Display	- Serviceable '

1.9 Communication

The status of the communication equipment at Nnamdi Azikiwe International Airport on the day of the occurrence was as follows:

VHF 118.6 MHz Tower Primary Frequency	- Serviceable '
VHF 118.9 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'
Frequentis Smartstrip Main & Backup	- Serviceable '
Voicecom 1,2 & 3	- Serviceable '
Panasonic Table Phone & Techno Mobile	- 'Serviceable'



There was effective communication between 5N-JEF and Air Traffic Controllers at Abuja airport.

1.10 Aerodrome information

The Nnamdi Azikiwe International Airport (DNAA), Abuja, has aerodrome reference points 09°000'25"N, 007°15'47"E and elevation of 1123 ft with runway orientation 04/22. The runway has a length of 3610 m and a width of 45 m with asphalt/concrete surface and a blast pad of 65 m at both ends.

1.11 Flight recorders

To satisfy regulatory requirements, the aircraft was retrofitted with a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR). The following are the particulars of these recorders:

Recorders	Flight Data Recorder	Cockpit Voice Recorder
Manufacturer	Honeywell, USA	Universal, USA
Model	SSFDR	CVR
Part Number	980-4700-025	1603-02-3
Serial Number	17020	985

The FDR and CVR were retrieved and downloaded at the Transportation Safety Laboratory of the Nigerian Safety Investigation Bureau (NSIB), Abuja, Nigeria. The CVR contained relevant portions of the flight, while the same flight was discovered and not captured on the FDR.





It was discovered that the FDR had undergone the required annual readout on 01 June 2022, at Express Aviation Support International Limited, Luton, United Kingdom. (See Appendix 2).

The reason for the FDR failure was not determined.

1.12 Wreckage and impact information

On landing runway 22, 5N-JEF veered to the left of the centre line at around link A2 and excursed unto the left paved runway shoulder, beyond the runway edge lights, at around 94 m from link A3. It then re-entered the active runway 186 m from the exit point as it veered to the right. 5N-JEF stopped making a 140° turn to a magnetic heading north.

On-site inspection of the aircraft by investigators revealed the following:

- 1. Damaged wheel assemblies of the left Main Landing Gear (MLG).
- 2. Severed hydraulic lines of the left MLG.
- 3. Hydraulic oil leakage below the left MLG.
- 4. Abrasion on the number 3 (right main wheel) tyre.
- 5. Abrasion on the number 1 nose landing gear tyre.





Figure 2: Damaged wheel assembly of the left Main Landing Gear (MLG) with severed hydraulic lines



Figure 3: Abrasion on the number 3 (right main wheel) tyre





Figure 4: Abraded number 1 Nose wheel tyre

1.13 Medical and pathological information

No medical or toxicology tests were conducted.

1.14 Fire

There was no fire.



1.15 Survival aspect

The occurrence was survivable as the aircraft structure remained intact. Seats and harnesses operated as required.

1.16 Tests and research

Nil.

1.17 Organisational and management information

1.17.1 Aero Tak Limited

The Nigeria Civil Aviation Authority granted Aero Tak Limited a Permit for Non-Commercial Flight (PNCF), number NCAA/ATR66/NCF116, granting it permission to fly non-commercially a Hawker 800XP with nationality and registration marks 5N-JEF within and outside Nigeria under Section 18.2.4.3 of the Nigerian Civil Aviation Regulation 2015 on 15 July 2021 valid till 14 July 2024.

During interviews with executives from Aero Tak Limited, it was confirmed that an operations manual and a Fatigue Management Programme were not instituted for aircraft they operated under PNCF dispensation, including 5N-JEF. It was their understanding that those provisions were not applicable to their PNCF operations.



1.17.1.2 Extracts of Raytheon Aircraft Approved Flight Manual for a HAWKER 800XP

SECTION 2 LIMITATIONS

AIRSPEED LIMITATIONS

Maximum Operating Speed

Sea Level to 12,000 ft, reducing by 1 kt per

680 ft to 310 KIAS at 29,000 ft.

Maximum Operating Mach Number

M_{MO}.....0.80 IMN

M_{MO}.....0.73 IMN with Mach Trim System Fail/

Inoperative and Autopilot disengaged.

NOTE: The maximum operating speeds and operating Mach numbers as given above shall not be deliberately exceeded in any regime of flight (climb, cruise or descent) except for pilot training or routine test flights per Sub-section 4. 10, NORMAL PROCEDURES (MISCELLANEOUS PROCEDURES) of this manual.



If the limits are inadvertently exceeded, speed shall be reduced to or below the

limiting values as quickly as possible.

Manoeuvring Speed

V_A.....196 KIAS

Wing Flaps Extended/Operating Speed

175 KIAS (Flaps 25°)

165 KIAS (Flaps 45°)

Air Brakes

Air Brakes (Flaps 0° Only)No Limit

MISCELLANEOUS LIMITATIONS

The air brakes must not be operated in flight when the flaps are extended to any position.



1.17.2 Nigerian Airspace Management Agency (NAMA)

The Nigerian Airspace Management Agency (NAMA) provides air navigation services to ensure safe, efficient, expeditious, and economic flight operations in Nigeria. It is also tasked with developing the Nigerian airspace infrastructure to a level consistent with the requirements of the International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs).

1.17.2.1 Air Traffic Control (ATC) service

Air Traffic Control is a service provided to prevent collisions between aircraft, in the manoeuvring area, between aircraft and obstructions, and to expedite and maintain an orderly flow of air traffic. ATC service is sub-divided into area control, approach control and aerodrome control. Aerodrome and approach control services are combined in many airports at the aerodrome control unit but are separated in Lagos, Abuja and Port Harcourt airports. Air Traffic Control services are provided either with procedural control or radar.



1.17.2.1.1 Tabulated excerpts from ATC Radar blips

Flight Level/Altitude(ft)	Rate of Descend (ft/m)	Ground Speed (kts)	Course/ Magnetic Track (°)
FL260	2900	463	259
FL200	2100	414	260
A100	1900	357	236
A080	1800	350	237
A070	1900	342	237
A065	1300	320	237
A050	1900	278	235
A038	1800	261	216
A034	1600	256	216
A028	1500	242	217
A021	900	197	216
A020	800	185	217
A019	1000	180	216
A018	600	183	216
A017	800	158	216
A016	700	144	217
A015	800	140	216
A014	700	138	216
A013	900	138	215
A012	900	140	216
A011	600	140	216
	500	139	216



1.17.3 Nigeria Civil Aviation Authority (NCAA)

The Nigeria Civil Aviation Authority (NCAA) was established by decree 49 of 1999. Its statutory responsibilities include ensuring the regulation, monitoring, and promotion of the safety, security, economic, and reliability of air navigation oversight in accordance with the International Civil Aviation Organization (ICAO) Standard and Recommended Practices (SARPs). The Authority effectively commenced operations on January 1 2000.



1.17.3.1 Excerpts from the Nig.CARs 2023

1.17.3.1.1 PART 8 OPERATIONS

8.1 GENERAL

8.1.1.1 APPLICABILITY

(a) Part 8 prescribes the requirements for:

(1) Operations conducted by a flight crew member certificated in Nigeria while operating aircraft registered in Nigeria;

8.1.1.2 DEFINITIONS

For Part 8, the following definitions shall apply—

Fatigue. A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness. Circadian phase, or workload (mental and/or physical activity) that can impair a person's alertness and ability to adequately perform safely operational duties.

8.14 CORPORATE AVIATION OPERATIONS

8.14.1.1 APPLICABILITY

(a) This subpart prescribes additional requirements for corporate aviation operation involving aircraft that are operated by pilots employed to fly the aircraft.

(b) The term "aircraft" - is used to indicate that a corporate aviation operation using a mix of aircraft and helicopters is subject to this Sub-part as long as at least one aeroplane is involved.

(c) An operation involving an aeroplane with a seating configuration of more than 9 passenger seats should be conducted in accordance with this section.

(1) Aeroplanes with a maximum certificated take-off mass exceeding 5700 kg; or



(2) Aeroplanes equipped with one or more turbojet engines.

8.14.2.2 OPERATIONAL MANAGEMENT

(a) Operator notification:

(1) If the operator has an operating base in a State other than the State of Registry, the operator shall notify the State in which the operating base is located.

(2) Upon notification per 8.14.2.2 (a), safety and security oversight shall be coordinated between the State where the operating base is located and the State of Registry.

8.14.2.3 OPERATIONS MANUAL

(a) The operator shall provide an operations manual containing all the instructions and information necessary for operations personnel to perform their duties. The manual shall be amended or revised as necessary to ensure that the information contained therein is kept up to date. All such amendments or revisions shall be issued to all personnel required to use this manual. The Authority shall approve the operations manual per IS 9.3.1.2 of these regulations.

...**.**

8.14.2.9 FATIGUE MANAGEMENT PROGRAMME

(a) The operator shall establish and implement a fatigue management programme that ensures that all operator personnel involved in the operation and maintenance of aircraft do not carry out their duties when fatigued. The programme shall address flight and duty times and be included in the operations manual.

....

IS 9.3.1.2 OPERATIONS MANUAL

Each AOC holder shall ensure that the contents and structure of the operations manual comply with the Authority's rules and regulations and are relevant to the area(s) and type(s) of operation.

••••



18.3.4 Permit for Non-Commercial Flights

18.3.4.1. This section shall apply to flight operations undertaken for non-commercial or private purposes:

(a) No person may use any aircraft for non-commercial purposes between two or more places in Nigeria unless such a person holds a Permit for Non-Commercial Flights (PNCF) issued by the Authority.

(b) Application for the grant, renewal and variation of a PNCF shall be made in writing to the Authority and shall meet the requirements as specified in IS:18.3.4.1 (A), IS:18.3.4.1 (B) and IS:18.3.4.1 (C) or such other information as may be published by the Authority from time to time.

(c) The Authority, if satisfied that the applicant has complied with the requirements for the grant or renewal of the PNCF, may grant or renew the PNCF.

(d) A PNCF shall be valid for three (3) years and subject to renewal every three years on such terms and conditions as may be specified by the Authority from time to time.

(e) A PNCF not utilised at the expiration of its validity period may not be renewed by the Authority notwithstanding, the holder of the PNCF may apply for a fresh issuance. (f) The holder of a PNCF shall continue to demonstrate to the Authority its ability to meet the conditions outlined in the PNCF. In addition, the holder must have adequate resources for the maintenance and safe operation of the aircraft.

(g) Each holder of a PNCF shall file with the Authority a true copy of every contract or agreement affecting air transportation or any modification or cancellation thereof between the holder and any other person, including air carriers.

(h) The Authority will charge such fees as it may determine for processing the grant and renewal of PNCF.



(*i*) The holder of PNCF shall pay such annual fee as may be determined by the Authority from time to time.

(*j*) The Authority will suspend or revoke a PNCF if the holder of the PNCF contravenes the terms and conditions therein, the Civil Aviation Act, the Regulations, rules and order made thereunder.

(*k*) The holder of PNCF shall be required to pay for variation of its permit, such fee as may be determined by the Authority from time to time.

1.17.3.2 Non-Serviceable flight recordings

There have been several instances where Flight Data Recorders (FDR) did not capture an accident or incident despite meeting the readout requirements set by regulators. As a result, the Accident Investigation Bureau (now known as the NSIB) issued Safety Recommendation 2022-002, advising the Nigeria Civil Aviation Authority (NCAA) to provide operators with detailed guidelines for compliance with Nig. CARs (2015) 7.8.1.4 (Continued Serviceability and Inspection of Flight Recorder Systems).

This recommendation aligns with the standards of other Civil Aviation Authorities, such as the United Kingdom's CAP 731: Approval, Operational Serviceability, and Readout of Flight Data Recorder Systems and Cockpit Voice Recorders (2011), which includes Attachment C: Guidance on FDR Validation. Similarly, the French BEA highlighted related issues in its 2005 study, "Flight Data Recorder Readout: Technical and Regulatory Aspects," identifying challenges such as:

- 1. Missing or incomplete data,
- 2. Incomplete or unavailable data frame layout documents and
- 3. Calibration issues.

Implementing the Safety Recommendation 2022-002 would enhance safety by ensuring that FDR readouts undergo a more thorough analysis before receiving approval from the NCAA.

1.18 Additional information

1.18.1 Get-home-itis/Press-on-itis

Press-on-itis is simply the decision to continue to the planned destination or toward the planned goal even when significantly less risky alternatives exist. It is also known as 'get-home-itis," "hurry syndrome," "plan continuation," and 'goal fixation." Press-on-itis results from a decision-making error that involves continuing toward the destination (objective) despite the lack of readiness of the aeroplane or crew and the availability of reasonable lower-risk alternatives.

Examples of press-on-itis include:

- Landing in a thunderstorm
- Failure to abide by aircraft performance limits
- Failure to go around from an unstabilised approach

The Flight Safety Foundation's (FSF) Approach-and-landing Accident Reduction (ALAR) Tool Kit study examined 76 approach and landing accidents and serious incidents and showed that the most frequent causal factor (74 percent) was 'poor professional judgment/airmanship" (e.g., poor decision-making). Press-on-itis accounted for 42 percent of all occurrences in which the crew continued an approach and landing when conditions warranted other action.

Aircrews may succumb to press-on-itis for the following reasons:



- They want to "just get the job done" (excessive commitment to task accomplishment) and are influenced by organisational goals such as on-time arrival, fuel savings and passenger convenience
- They are over-confident that nothing will go wrong
- They welcome a chance to demonstrate their skills in challenging situations
- They have a personal commitment/appointment at the completion of the flight, or they may simply want to get to the destination.
- They are fatigued
- They become task-saturated
- They have not set performance limits and trigger gates that require a go-around.
- They may have poor CRM skills, and even if one of the crew members feels uncomfortable about continuing, he or she may, therefore, not speak up.

Source: https://skybrary.aero/articles/press-itis-oghfa-b2.0 ANALYSIS



2.0 ANALYSIS

2.1 General

The pilots were licensed for the flight in accordance with the Nigeria Civil Aviation Regulations (Nig.CARs) 2023. No evidence indicated any medical condition that might have adversely affected their performance during the flight

The aircraft had a valid Certificate of Airworthiness at the time of the incident. No evidence indicated any failure of the Aeroplane's power plants, structures, or systems that would have affected its performance during the incident landing.

This analysis will discuss Organisational factors related to the PNCF operations, human factors (get home-itis), and aircraft handling during high-speed descent, with reference to CVR transcripts, ATC radar scope, crew statements, and dispatch release documents.

2.2 Aircraft handling during the approach and landing phase

The flight crew wanted to enhance their skills and expedite the approach as they decided to do a high-speed descent below FL 100. The procedure required careful management of the aircraft's energy. Failure to do so can result in the aircraft exceeding the recommended speeds and configurations at the various flight phases.

Due to the absence of valid Flight Data Recorder (FDR) data this part of the analysis relied on radar data which captured parameters such as groundspeed, rate of descent, and absolute altitude. The groundspeed at lower altitudes was equated to airspeed, as the Tower reported calm wind conditions during the landing clearance.

During the descent, the PF (Pilot Flying) observed that the aircraft speed was 270 KIAS, within the high-speed regime, as confirmed during the post-occurrence interview, leading the PF to suspect a tailwind. As a remedy, the throttles were set to idle.



The aircraft crossed the 1000 ft marker at 197 kts ground speed with a sink rate of 900 ft/min and the 500 ft marker at 144 kts ground speed with a sink rate of 700 ft/min. The PM declared 'CHECKS STABLE", indicating that the approach was judged stable, and the Autopilot was then disengaged. The aircraft landed on the runway (see figure 8) with the previously stated speed, mostly un-bled and veered to the left. As the PF attempted to correct the veer, the aircraft exited the active runway, though the left veer was corrected before leaving the paved surface, resulting in a subsequent right drift. Physical evidence suggests that the aircraft's momentum significantly accentuated the control inputs at the time of landing. The final resting position of the aircraft, 140 degrees from the initial direction of travel, suggests using either the tiller, a full left rudder input, or both in an attempt to control the aircraft.

The higher-than-usual speed during the approach went unaddressed by the flight crew, possibly due to their relative inexperience with high-speed approaches on this aircraft or performance degradation from a long duty time. This scenario is often referred to as "Gethome-itis" or "Press-on-itis" syndrome.

2.3 Organisational factors observed

The crew conducted a total of eight flight sectors, accumulating seven hours of flight time. Considering the hour before resumption to the flight line and thirty minutes after, the evidence indicates that the flight crew was on split duty for six hours out of the 17-hour and 10-minute duty periods. Therefore, this time cannot be excluded from the rest period, in accordance with Nig.CARs 8.12.1.8(b)(i). The extended operations and limited time between flights likely induced stress and a desire to 'get home" (referred to as get-home-itis) among the flight crew.



The aircraft operated under a Permit for Non-Commercial Flight (PNCF) issued by the Nigeria Civil Aviation Authority. However, due to the type of propulsion and the aircraft's weight, the provisions of Nig.CARs 8.14: Corporate Aviation Operations apply. This includes developing an Operations Manual and a Fatigue Management Programme.

The operator, Aero Tak, had not developed an operations manual. This may be because Nig.CARs 8.14.2.3 mandates that the contents and structure of the Operations Manual align with Implementing Standard: Part 9 – Air Operator Certification and Administration. The operator likely interpreted these provisions to apply only to Air Operator Certificate (AOC) holders and not to PNCF. However, the wording of Nig.CARs 8.14: Corporate Aviation clearly states that the aircraft and its operations must comply with the said provisions.

This interpretation might have influenced the non-compliance with Nig.CARs 8.14.2.9: Fatigue Management Programme, as the operator, did not establish and implement a Fatigue Management Programme to address flight and duty times.

Properly implementing these provisions would have enabled the operator to foresee the need to reduce the crew's duty time, especially on days with scheduled annual events. Solutions such as deploying an alternate crew to support the flight crew on the day of the occurrence could have helped mitigate stress or fatigue.

Requiring the Nigeria Civil Aviation Authority to enforce the proper implementation of Nig.CARs: Corporate Aviation would resolve the operator s misinterpretation.

3.0 CONCLUSIONS

3.1 Findings

- 1. The pilots were certified to conduct the flight.
- 2. The PF was checked out and upgraded to the command position of HS-125/800XP on 15 June 2023 and has since acquired about 65 hours on type.
- 3. The Captain was the Pilot Flying (PF), and the First Officer was the Pilot Monitoring (PM).
- 4. The aircraft had a valid Certificate of Airworthiness.
- 5. The aircraft was retrofitted with a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) to satisfy regulatory requirements.
- 6. The CVR contained relevant portions of the flight that were not captured on the FDR.
- 7. The FDR underwent its annual readout on 01 June 2022 at Express Aviation Support International Limited, Luton, United Kingdom.
- 8. 5N-JEF operated under a Permit for Non-Commercial Flight.
- 9. The crew commenced flight operations at 06:30 h and terminated at 22:05 h with a total of eight (8) sectors and a cumulative flight time of seven (7) hours.
- 10.5N-JEF established contact with Abuja Approach Control (APP) and was cleared ILS approach Runway 22.
- 11. The crew executed a high-speed descent manoeuvre below FL 100.
- 12. The calculated approach speed by the crew before descent was 133 kts.
- 13.5N-JEF touched down runway 22 with a ground speed of 140 kts.
- 14.On landing Runway 22, the aircraft veered to the left of the centre line around link A2 and excursed to the left paved portion of the runway shoulder.
- 15.5N-JEF re-entered the active runway 186 m from the exit point as it veered to the right.



- 16.5N-JEF made a 140° turn and came to a stop on a magnetic heading north with both tyres of the left Main Landing Gear damaged.
- 17. The crew were on duty for 17 hours and 10 minutes on the day of the occurrence.

3.2 Causal factor

Failure to maintain directional control of the aircraft after touchdown following an unstabilised approach.

3.3 Contributory factors

- 1. Inadequate speed management during the execution of the approach
- 2. "Get-home-itis/Press-on-itis" syndrome.



4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2024-048

The Nigeria Civil Aviation Authority should ensure that Aero Tak Limited complies with the

provisions of Nig.CARs (2023) 8.14: Corporate Aviation in Fatigue Management Programme

as part of its Operations Manual.



APPENDICES

Appendix A

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Appendix: B





Readout of Flight Data Recorder: 980-4700-025 Data downloaded from aircraft: 5N-JEF

Produced by



Unit I, Bilton Court, Bilton Way Lutan LUI ILX UK

www.expressaviation.com

 $\mathbf{CAA}{=}\mathbf{UK}145.00869 + \mathbf{EASA} = \mathbf{UK}.145.00869 + \mathbf{FAA}{=}\mathbf{IX}1\mathbf{Y}439\mathbf{D}$





Express Aviation Support International Ltd

READOUT DETAILS

Customer	VOLARE AVIATION
PO Number	RO513844
Job Number	27816/A
Aircraft No./Type	5N-JEF / Hawker 800XP
Flight Number	NA
Flight Recorder Pt No.	980-4700-025
FDR Serial No.	SSFDR-17020
AFDAU Pt No.	NA
AFDAU Serial No.	NA
DFL Ident	Hawk800-64 (Avionica)
Aircraft Serial No.	258566
Frame	N/A
Date transcribed	01 June 2022

Last Flight analysed

Comments

Some surface parameters not recorded

Note: Discreet parameters that show are assumed to be working correctly

Readout Engineer's Signature

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CAA.UK.145.00869 -EASA.UK.145.00869 - FAA-1X1Y439D

Form: EASI/Readout/RD Revised JAN 2021



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BAROSETTING#2	X		-		
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FLAP				X	NOT CONNECTED
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LONGACCEL	X				
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L-MODE1LNAVARM	X				
L-MODE1LNAVCAPT	X				
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L-MODE1VAPPARM		X			
L-MODE1VAPPCAPT		X			
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L-MODE2BCARM		X		
L-MODE2BCCAPT		X		
L-MODE2CAP/TRK		X	0	
L-MODE2HDGCAPT	X			
L-MODE2HOLD		X		
L-MODE2LNAVARM	X			
L-MODE2LNAVCAPT	X	1		
L-MODE2LOCARM		X		
L-MODE2LOCCAPT		X		
L-MODE2TRANSITION	X			
L-MODE2VAPPARM		X		
L-MODE2VAPPCAPT		X		
L-MODE2VORARM	1.10	X		
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V-MODE1ALT		X		
V-MODE1ALTCAPT	X			
V-MODE1ASELARM	X			
V-MODE1ASELCAPT	X			
V-MODE1CAP/TRK	X			
V-MODE1ELARM		X		
V-MODE1ELCAPT		X		
V-MODE1GACAPT	X			
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V-MODE1GSCAPT	12	X		
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V-MODE1TRANSITION	X			
V-MODE1VNAVARM		X		
V-MODE1VNAVCAPT		X		
V-MODE1VNAVCAPT		X		
V-MODE2ALT		X		
V-MODE2ALTCAPT	X			
V-MODE2ASELARM	X			
V-MODE2ASELCAPT	X			
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V-MODE2MACHCAPT		X		
V-MODE2TRANSITION	X			
V-MODE2VNAVARM		X		
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3	Rea	dout S.	OW Type:Hawker800XP			
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Radar scope at three points





Figure 5:





Figure 6:



Figure 7:





Figure 8: