AIRCRAFT ACCIDENT REPORT

MWTTSG/2012/10/25/F

Accident Investigation Bureau

Report on the Accident involving a Cessna 208B Caravan with Nationality and Registration Marks 5N-BMJ belonging to Ministry of Works and Transport, Taraba State Government which occurred at Kwanan-Waya Village, Yola South Local Government Area, Adamawa State On 25th October 2012

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

The report is based upon the investigation carried out by 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 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)

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GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT

AEP	Airport Emergency Plan
AFQRJOS	Aviation Fuel Quality Requirements for Jointly Operated System
AIB	Accident Investigation Bureau
AIP	Aeronautical Information Publication
AOG	Aircraft on Ground
ASM	Airspace Manager
ATOM	Air Traffic Operations Manager
C of A	Certificate of Airworthiness
CACA	Chief Aeronautical Communication Assistant
CVR	Cockpit Voice Recorder
ECTM	Engine Condition Trend Monitoring
FAAN	Federal Airport Authority of Nigeria
FDR	Flight Data Recorder
FMC	Federal Medical Centre
h	Hour(s)
ICAO	International Civil Aviation Organization
MWTTSG	Ministry of Works and Transport, Taraba State Government
NAFDAC	National Agency for Food Drug Administration and Control
NAMA	Nigerian Airspace Management Agency
NCAA	Nigerian Civil Aviation Authority

NEMA	National Emergency Management Agency
NIMET	Nigerian Meteorological Agency
NNPC	Nigerian National Petroleum Corporation
POB	Persons On Board
P&WC	Pratt and Whitney Canada
PPL	Private Pilot Licence
QNH	Altimeter setting that causes altimeter to indicate altitude above sea
SARPs	Standard and Recommended Practices
TBO	Time Between Overhaul
VSM	Vertical Separation Minimum

Aircraft Accident Report No.:	MWTTSG/2012/10/25/F
Registered Owner and Operator:	Ministry of Works and Transport, Taraba State Government
Aircraft Type and Model:	C208B Caravan
Manufacturer:	Cessna Company U.S.A.
Year of Manufacture:	2009
Registration Marks:	5N-BMJ
Serial No.:	208B 2098
Location:	Kwanan-Waya Village, Yola South Local Government Area (N09° 16`08.3", E012° 18`20.0"), 7.4 NM West of Yola Airport
Date and Time:	25th October, 2012 at 18:30 h *(All times in this report are local time, equivalent to UTC+1 unless otherwise stated)*

SYNOPSIS

Accident Investigation Bureau (AIB) was notified of the accident by the Nigerian Civil Aviation Authority (NCAA) on 25th October, 2012. Investigators were dispatched the following day and commenced investigation. All relevant stakeholders were notified accordingly.

On the 25th of October, 2012 at 17: 48 h, a Cessna Caravan 208B, 5N-BMJ, departed Jalingo for Yola on a Visual Flight Rules (VFR) flight plan with four Persons-On-Board (one crew and three passengers). At 18:00 h, the Airport Manager stationed at Jalingo by Taraba State Government, called Yola Control Tower (CT) by phone to advise that the aircraft had departed Jalingo for Yola.

At 18:25 h the pilot reported field in sight. CT then advised him to "continue approach and report final, wind calm" and the pilot acknowledged "will continue approach, to report final".

At 18:27 h CT had the aircraft in sight and advised the pilot to report "final, wind calm", the pilot acknowledged.

At 18:30 h, CT lost visual contact with 5N-BMJ and tried to raise her on radio but there was no response.

At 18:37 h, information was received from witnesses, regarding a possible plane crash at Yola-Numan road close to Nigerian National Petroleum Corporation (NNPC) depot. This information was subsequently passed to the fire watch room. Rescue team and other security personnel were mobilized to the location of the crash. However, before the arrival of the rescue team from the airport, the locals had rescued the occupants from the wreckage.

The occupants were subsequently taken to Federal Medical Centre (FMC), Yola for medical treatment.

The accident occurred at dusk. The aircraft was destroyed.

Causal Factor

The Bureau could not conclusively determine the cause of this accident; however, the investigation identified the following factors:

- The pilot was not certified, qualified and not competent to fly the aircraft.
- The decision of the pilot to operate a VFR flight after sunset.

- Inadequate oversight by the Regulatory Authority.

Two Safety Recommendations were made.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

On the 25th of October, 2012 at 17:48 h a Cessna Caravan 208B, 5N-BMJ, departed Jalingo for Yola on a Visual Flight Rules (VFR) flight plan with four persons on board (POB). At 18:00 h, the Airport Manager stationed at Jalingo by Taraba State Government, called Yola Control Tower (CT) by phone to advise that the aircraft had departed Jalingo for Yola.

At 18:04 h, CT notified the Airspace Manager about the departure of 5N-BMJ.

At 18:19 h, CT established contact with 5N-BMJ and the pilot reported "06 minus one POB, endurance of one hour thirty minutes remaining and maintaining altitude of 3,500 ft." The pilot also gave estimate for arrival at Yola Airport as 1001 UTC, but CT advised the pilot that time was 1719 UTC. CT requested again the estimate of 5N-BMJ to Yola; but the pilot advised CT that field in sight will be reported. CT again requested estimate to Yola for the third time, the pilot acknowledged and gave 0955 UTC as estimate to Yola; CT again advised the pilot that actual time was 1719 UTC. CT then requested the flight time from present position to Yola of which the pilot gave flight time of 9 mins 30 seconds. CT acknowledged and confirmed 10mins and advised the pilot that the Estimated Time of Arrival (ETA) was 1730 UTC based on the estimated flight time of 10 minutes to which the pilot acknowledged. At this point, the CT passed the weather report to 5N-BMJ and requested the pilot to report 'field in sight'.

According to the Air Traffic Operations Manager (ATOM), the pilot reported field in sight at 18:25 h. CT then advised him to "continue approach and report final, wind calm" and the pilot acknowledged "will continue approach, to report final".

At 18:27 h, CT had the aircraft in sight and advised the pilot to report 'final, wind calm', the pilot acknowledged.

At 18:30 h, CT lost visual contact with 5N-BMJ and tried to raise her on radio but there was no response.

According to the ATOM, information was received from witnesses at 18:37 h, regarding a possible plane crash at Yola-Numan road close to the Nigerian National Petroleum Corporation (NNPC) depot. This information was subsequently passed to the fire watch room. Rescue team and other security personnel were mobilized to the location of the crash. However, before the arrival of the rescue team from the airport, the locals besieged the site.

At the crash site, it was ascertained that the aircraft had four occupants on board. All four occupants were rescued and subsequently taken to Federal Medical Centre (FMC) Yola for treatment.

The accident occurred at dusk.

1.2 Injuries to Persons

Injuries	**Crew**	**Passengers**	**Total in the Aircraft**	**Others**
Fatal	Nil	Nil	Nil	Nil
Serious	1	3	4	Nil
Minor	Nil	Nil	Nil	Not Applicable
None	Nil	Nil	Nil	Not Applicable
TOTAL	1	3	4	Nil

1.3 Damage to Aircraft

The aircraft was destroyed.

1.4 Other Damage

Economic crops on a farmland were destroyed.

1.5 Personnel Information

1.5.1 Pilot

Nationality:	Nigerian
Age:	51 years
Gender:	Male
Licence Type:	PPL (A)
Licence Validity:	6th March, 2016
Instrument Rating:	Not Applicable
Night Rating:	Not Valid for Night Flight
High Performance Endorsement:	Nil
Complex Aircraft Endorsement:	Nil
Aircraft Type Ratings:	C-172
Medical Validity:	9th July, 2013
Total Flying Time:	Not Available
Hours on Type:	Not Available
Last 90 days:	Not Available
Last 28 days:	Not Available
Last 7 days:	Not Available
Last 24 hours:	Not Available
Class of Ratings:	Single Engine
Group A:	C-172

Category Rating:	Aeroplane
Total hours on C-172 as a student:	58:40 h
Hours on C-172 as a pilot in command:	8:10 h

The pilot was the Executive Governor of Taraba State at the time he completed training and obtained a Private Pilot Licence.

1.6 Aircraft Information

1.6.1 General Information

Manufacturer:	Cessna Company U.S.A
Type:	C 208 B
Serial No.:	208B 2098
Year of Manufacture:	2009
Operator:	Ministry of Works and Transport, Taraba State Government (MWTTSG)
Nationality and Registration Marks:	5N-BMJ
Certificate of Airworthiness Validity:	12th July, 2013
Airframe Time:	999 h 20 mins
Total hours Since New:	999 h 20 mins
Cycles:	615 as at 16th October, 2012
Total hour Since Last Inspection:	914.44 h as at 8th July, 2012

The Cessna Caravan 208B is a high-wing, single-engine turbo-prop rated at 850 hp, with fixed tricycle landing gear aircraft. It is equipped with Garmin G1000.

1.6.2 Engines

Manufacturer:	Pratt & Whitney Canada
Engine Type:	PT 6A – 114A
Year of Manufacture:	2009
Serial No:	5N PCE-PC 1621
Total time Since New:	999 h 20 mins
Total time Since Overhaul:	84 h 36 mins
Total Engine Hours:	999 h 20 mins
Last Engine Inspection	2nd December, 2011
	At Vector Aerospace Africa PTY Ltd South Africa
Type of Fuel used:	Jet-A1

1.6.3 Propeller

Manufacturer:	McCauley Propeller Systems
Model Number:	C700 Series MPC-14
Serial number:	081781
Time Since Overhaul:	999 h 20 mins
Number of blades:	3
Type:	Variable Pitch

1.6.4 Maintenance Information

The aircraft was manufactured by Cessna Company, Wichita, USA in 2009, first delivered to Private Flyers International and ownership was later transferred to Ministry of Works and Transport, Taraba State Government. The aircraft was operated and maintained by Skypower Express Airways.

On 22nd September, 2011 after a flight from Jalingo to Abuja, an entry was made in the aircraft log book by another pilot indicating, "Fire seen from engine A/C is subject to engineer's inspection." A test flight was carried out by the same pilot and the aircraft was found fit for ferry to Kaduna. In December 2011, there was an occurrence of engine over-heat/over-temperature. The issue was reported to Pratt and Whitney Canada (P&WC) the manufacturer of the engine which recommended a download of the Engine Condition Trend Monitoring (ECTM). After a successful download, P&WC advised that the engine be taken to its recommended maintenance workshop, Vector Aerospace Africa (PTY) Limited, in South Africa since both the aircraft and engine were still under warranty. The engine was returned to Abuja in March, 2012 and reinstalled in April 2012 at Julius Berger hangar facility in Abuja.

1.7 Meteorological Information

Record from Nigerian Meteorological Agency (NiMeT) showed the weather at Yola *was clear all day with very good visibility of 9999; wind was calm around the period of the crash but has been mainly of westerly component with speed ranging from 00 to 06 knot. Sunset time was 1651Z and sunrise was 0458Z* [1] *on the day of the crash 25th October, 2012.*

[1] Z = UTC as in Coordinated Universal Time

Time:	**1500 UTC**
Wind:	270/04 kt
Visibility:	10 km
Weather:	Nil
Cloud:	Few 420 m Few CB 660 m (NE)
Temp/Dew:	30/24 °C
QNH:	1011 hPa

Time:	**1600 UTC**
Wind:	Calm
Visibility:	10 km
Weather:	Nil
Cloud:	Few 420 m Few CB 660 m (NE)
Temp/Dew:	28/23 °C
QNH:	1011 hPa

Time:	**1700 UTC**
Wind:	Calm
Visibility:	10 km
Weather:	Nil
Cloud:	No Significant Cloud
Temp/Dew:	27/23 °C
QNH:	1011 hPa

Time:	**1800 UTC**
Wind:	Calm
Visibility:	Above 10 km
Weather:	CAVOK
Cloud:	No Significant Cloud
Temp/Dew:	27/24 °C
QNH:	1011 hPa

1.8 Aids to Navigation

All landing aids at Yola Airport were serviceable at the time of the accident.

1.9 Communications

Communication between the CT and the aircraft were recorded by ground based automatic voice recording equipment for the duration of the flight. The quality of the aircraft recorded transmission was good. The VHF equipment was serviceable. The pilot was incoherent for some part of the communication.

1.10 Aerodrome Information

Aerodrome Code:	DNYO
Airport Name:	Yola Airport
Airport Address:	Yola
Airport Authority:	FAAN
Airport Service:	AIS, ATS

Type of traffic Permitted:	IFR/VFR
Coordinates:	09°15'36" N, 01°22'54.9" E
Runway:	17 and 35
Elevation:	599 ft
Runway Length:	3,000 m
Runway Width:	45 m
Hours of Operation:	0600-1800
Airspace Classification:	E

The accident occurred 7.4 NM West of Yola International Airport at coordinates of N09°16`08.3", E012°18`20.0".

Runway edge lighting was available at the time of the accident.

On the day of the occurrence, a message was relayed to the CT to extend and stay open for the arrival of 5N-BMJ.

This airport is routinely used for the annual Hajj operations.

The grasses at the sides of the Yola Runway were overgrown and the runway markings were not legible.

AIP DNYO Operational Hours: *Extension on operational hours beyond 1800 h is strictly by application to NAMA Headquarters.*

1.11 Flight Recorders

The aircraft was not fitted with Flight Data Recorder (FDR) or Cockpit Voice Recorder (CVR), neither recorder was required by Regulations.

1.12 Wreckage and Impact Information

The accident occurred on a farm land about 100 meters from the NNPC Depot, Yola. The first point of contact was on a tall dry tree where the empennage section of the aircraft was detached, the aircraft battery was found 30 meters away from the main wreckage. The Engine and Propeller units were found 10 and 15 meters away respectively from the main wreckage; the fuselage section and the cockpit areas were substantially damaged but found largely in one piece.

Examination of the wreckage area and vicinity revealed no evidence of pre-impact or post-impact fire. The majority of the aircraft system components were located in the main debris field. An examination of the first point of contact indicates that the aircraft impacted a tree in a left-wing-down attitude. The location of the ground scars, separated empennage section, and engine components indicate that the left wing tip made initial ground contact.

Throttle control position was found at below-idle beta position. The left tank fuel selector was found in ON position while the right tank selector was found in OFF position.

Figure 1: Photo showing the left side view of the aircraft main wreckage

Figure 2: Photo showing detached empennage section of the aircraft and destroyed farmland

Figure 3: Photo showing the front view of the main wreckage

Figure 4: Photo showing the cockpit area

1.13 Medical and Pathological Information

The Bureau was unable to carry out medical/pathological tests on the occupants. However, they were rescued and taken to Federal Medical Centre Yola for medical treatment. The pilot was later flown out of the country for further medical treatment. Efforts made by the Bureau to obtain their medical records were not successful.

1.14 Fire

There was no evidence of pre or post-impact fire.

1.15 Survival Aspects

Upon receiving information from witnesses, an airport security personnel alerted the airport fire services at 19:10 h, of a crash close to NNPC depot. A fire truck was dispatched immediately. On reaching the depot, the road to the crash site was discovered to be swampy and inaccessible. The fire truck was left behind, and the fire and rescue team headed to the crash site on foot. The team arrived the crash site at 19:52 h. They discovered that the aircraft's occupants had been rescued by the locals. The fire and rescue team eventually transported the victims to FMC Yola for medical attention.

The damage to the cabin area was minimal such that a liveable volume of space existed where the occupants were.

On inspection of the seats and restraints, they were discovered to be in their normal anchorage positions.

Figure 5: Photo showing the condition of aircraft fuselage with a liveable volume of space existing in the cabin

1.16 Tests and Research

1.16.1 Fuel Sample Analysis

The fuel samples from both tanks of the aircraft were taken to a laboratory in Lagos. The products met the requirement of Aviation Fuel Quality Requirements for Jointly Operated Systems (AFQRJOS) issue 27 check list. **See Appendix 1**: Fuel Sample Report.

1.16.2 Engine Teardown Report

The engine was inspected on the 5th and 6th of February, 2018 at the Pratt and Whitney Canada (P&WC) Service Investigation Facility located at St. Hubert, Quebec, Canada. The following conclusion was reached after the comprehensive engine examination:

The engine exhibited contact signatures to its internal components characteristics of an engine producing power at the time of impact.

The engine did not display any indications of any pre-impact anomalies or distress that would have precluded normal engine operation.

See Appendix 2: Comprehensive Engine Teardown Report.

1.16.3 Drugs Recovered

During the preliminary/site stage of the investigation some drugs were found at the cockpit area of the main wreckage. The drugs were taken to National Agency for Food Drug Administration and Control (NAFDAC) facilities in Lagos for analysis. The drugs discovered are:

- 4life Transfer Factor
- MALEPRO food supplement
- LOXAGYL 400
- Metronidazole B.P. 400mg
- Fexodenadine Hydrochloride tablets 180mg
- 4life Transfer Factor Plus
- Tri-Factor formula, food supplement
- 4life transfer factor
- Lucoach, dietary supplement
- Copegus 200mg
- Barley powder: Green supreme with chromium-picolinate

NAFDAC did not establish whether the recovered drugs contributed to the accident by impairing the pilot's ability to operate the aircraft. **See Appendix 3**.

1.17 Organizational and Management Information

1.17.1 Nigerian Civil Aviation Authority (NCAA)

NCAA is the apex regulatory body overseeing the activities of all airlines/operators, crew, engineers, navigation aids, all service providers including airport authorities and air traffic service providers.

1.17.1.1 Extract from Nig.CARs Part 8A

8.8.3.6 VFR FLIGHTS REQUIRING ATC AUTHORISATION

(a) Unless authorised by the appropriate ATC authority, no pilot may operate in VFR flight—

(1) Above FL 200; or

(2) At transonic and supersonic speeds.

(b) ATC authorisation for VFR flights may not be granted in areas where a VSM of only 300m (1,000 ft) is applied above FL 290.

(c) No person may operate in VFR flight between sunset and sunrise.

1.17.1.2 Requirements for Flight Crew Members

Nig.CARs *2.3.1.3 Authority to Act as a flight Crewmember*

a. a person shall not act as a pilot flight crewmember of an aircraft registered in Nigeria unless a valid licence or a validation certificate is held showing compliance with the specifications of this Part 2 and appropriate to the duties performed by that person.

b. No person may act as the PIC or co-pilot of an aircraft unless that person holds the appropriate category, class and type rating for the aircraft to be flown.

1.17.1.3 Limitations of PIC with no Instrument Ratings

Nig.CARs 2.3.1.6 *RECENT EXPERIENCE AND CURRENCY REQUIREMENTS*

(a) A pilot shall not operate an aircraft carrying passengers as PIC or co-pilot unless he or she has carried out at least three take-offs and three landings as pilot-flying in an aircraft of the same type/class or variant of a type or a flight simulator of the aircraft type/class to be used, in the preceding 90 days.

(b) The holder of a licence that does not include an instrument rating shall not act as PIC of an aircraft carrying passengers at night unless he or she has carried out at least three take-offs and three landings at night during the previous 90 days.

(c) A pilot shall not operate an aircraft under IFR or in weather conditions less than the minimums prescribed for VFR flight unless within the preceding six months:

(1) The pilot had an instrument proficiency check on the manoeuvres in IS 2.3.3.5 (IR SKILL TEST) or

(2) Has logged six hours instrument flight time including at least three hours in flight in the category of aircraft and has carried out six instrument approaches in either actual or simulated conditions.

(d) Each person shall document and record the experience required to show recent flight experience.

(e) Each pilot shall also meet the currency requirements in Part 8: 8.4 before operating an aircraft in Nigeria

1.17.1.4 High Performance and Complex Aeroplane Endorsements

A high-performance aircraft is an aircraft having an engine of more than 200hp. A complex aircraft is one that is equipped with a retractable landing gear, wing flap and

a controllable pitch propeller. (Nig.CARs 2.1.1.2 (a) (26)). The Cessna Caravan 208B, though not equipped with retractable landing gear satisfies the latter two conditions.

Extra endorsements by a flight instructor are required before a pilot is authorized to fly such an airplane in accordance with Nig.CARs 2.3.2.7.

Nig.CARs 2.3.2.7 states:

No person shall act as pilot in command of a high performance aeroplane unless the person has:

Received and logged ground and flight training from an authorized instructor in high performance aeroplane or flight simulation training device that is representative of a high performance aeroplane and has been found proficient in the operation and systems of the aeroplane; and

Received a one-time endorsement in the pilot's log book from an aeroplane authorized instructor who certifies that the person is proficient to operate a complex aeroplane.

1.17.1.5 Air Transport Economic Regulations (Nig.CARs 18.2.4)

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

18.2.4.1. No person shall 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.

18.2.4.2. Application for the grant or renewal of a PNCF shall be made in writing to the Authority and shall meet the requirements as specified in IS:18.2.4(A) and IS:18.2.4(B) or such other information as may be published by the Authority from time to time.

IS:18.2.4 (A)—(1) General

(i) Application for grant of Permit for Non-Commercial Flights (PNCF) shall be made in writing to the Director-General, Nigerian Civil Aviation Authority (NCAA).

(ii) The application shall be signed by a person duly authorized by the applicant.

(iii) The application for renewal of PNCF must be submitted to the Director- General, Nigerian Civil Aviation Authority on or before a date not less than six (6) months to the expiration of the existing PNCF.

18.2.4.3. The Authority if satisfied that the applicant has complied with the requirements for the grant or renewal of the PNCF, shall grant or renew the PNCF.

18.2.4.4. A PNCF shall be valid for a period of 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.

1.17.2 Skypower Express Airways

The aircraft was operated and maintained by Skypower Express Airways.

A letter dated 22nd October, 2012 was written by the Managing Director, Skypower Express Airways informing NCAA that 5N-BMJ had been removed from its maintenance list. A copy of the letter which was acknowledged on the same date is attached as **Appendix 4**.

1.17.3 Ministry of Works and Transport, Taraba State Government (MWTTSG)

MWTTSG operates a Cessna 208B Caravan with nationality and registration marks, 5N-BMJ and two Bell helicopters.

5N-BMJ was operated and maintained by Skypower Express Airways. MWTTSG terminated its contract agreement with Skypower Express Airways in August 2012 and

on the 16th of October, 2012, recalled the aircraft to Jalingo. A letter dated 22nd October, 2012 was written by the Managing Director, Skypower Express Airways informing NCAA that 5N-BMJ had been removed from its maintenance list.

AIB was unable to sight relevant documents regarding the operation of this aircraft under MWTTSG. There was no evidence to suggest that MWTTSG had a Permit to Fly for Non-Commercial Flight (PNCF) as required by Nig.CARs part 18.2.4: Air Transport Economic Regulations.

1.17.4 Federal Airport Authority of Nigeria (FAAN)

Federal Airport Authority of Nigeria is a Service Organization statutorily charged with the responsibility of managing all Commercial Airports in Nigeria and providing services to both Passengers and Airlines.

Nig.CARs 12.6. OBLIGATIONS OF AERODROME OPERATOR

12.6.1 the grant of an aerodrome certificate obliges the aerodrome operator to ensure the safety, regularity and efficiency of operations at the aerodrome, to allow authorized officers of the authority access to the aerodrome to carry out safety audits, inspections and testing and to be responsible for notifying to the authority as prescribed in this regulation.

12.6.2 the aerodrome operator shall comply with the standards specified in the aerodrome standard manual and with any condition endorsed in the aerodrome certificate.

12.6.8 an aerodrome operator shall remove from the aerodrome surface any vehicle or other obstruction that is likely to be hazardous.

ICAO ANNEX 14 chapter 4: Obstacle Restriction and Removal states:

Airspace around the aerodrome to be maintained free from obstacles so as to permit the intended aero plane operations at the aerodromes to be conducted safely and to

prevent the aerodrome from becoming unusable by the growth of obstacles around the aerodrome.

Nig.CARs 12.6.20 states: *the aerodrome operator shall*

(a) carry out special inspections:

(1) as soon as practicable after an aircraft accident or incidence within the meaning of requirement specified in ICAO annex 13.

(2) during any period of construction or repair of the aerodrome facilities or equipment that is critical to the safety of aircraft operations.

(3) after construction, repair or maintenance work have been carried out on aerodrome facility and equipment.

(C) The aerodrome operator shall provide initial and recurrent training once in every three (3) years for any person who has duties in respect of the aerodrome inspection programme in at least the following areas:

(1) Airport familiarization, including airport signs, marking and lighting;

(2) Airport Emergency Plan

(3) Notice to Airmen (NOTAM) notification procedures

(4) Procedures for pedestrians and ground vehicles in movement areas and safety areas.

(5) Procedures for reporting changes in movement area condition.

This is established by establishing a series of obstacle limitations surfaces that define the limits to which objects may protrude into the Airspace.

The Bureau observed that the terminal building under construction constitutes an obstruction to the viewing of the approach path of runway 35 from the CT. The

Airspace Manager (ASM) in Yola had on several occasions alerted the relevant agencies of the safety implications of the project, with no positive response.

1.17.4.1 The Training and Equipping of Aircraft Rescue Fire Fighting Service (ARFFS) Personnel by FAAN

Nig.CARs 12.6.16.8 (a - d) outlines Personnel Requirements for aircraft firefighting personnel.

Federal Airport Authority of Nigeria (FAAN) Fire Officers in Yola have not undergone any refresher course for a period between three to ten years. Firemen in Yola airport do not undergo physical fitness test and have not gone for basic life support training as required by Nig.CARs.

Also, fire officers at Yola airport do not have adequate/appropriate Personal Protective Equipment (PPE) and Personal Protective Clothing (PPC) for use during emergencies.

The ambulance parked at the Yola fire station was unserviceable at the time of the accident.

1.17.5 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 control tower constitutes the primary method of controlling air traffic on the ground and in close proximity of an airport. The control 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 within the vicinity of the airport.

1.18 Additional Information

1.18.1 Aerodrome Emergency Planning (AEP)

Aerodrome emergency planning is the process of preparing an aerodrome to cope with an emergency occurring at the aerodrome or its vicinity as required by Annex 14, Chapter 9.

The critical consideration for AEP which was addressed in part of Airport Services Manual (Doc 9137) includes:

The assessment and testing of aerodrome emergency plan to respond to an emergency within 1,000 m from the threshold of each runway.

The potential simulation to assist the revised plan.

Medical requirements at an aerodrome commensurate with the number of passengers on board.

Capacity of terminal building facilities to handle increased number of friends and relatives.

Airport emergency plan also includes provision of rescue and firefighting services.

2.0 ANALYSIS

2.1 General

Weather was clear all day with good visibility; wind was calm at the time of the accident. Hence, weather was not a factor in this occurrence.

The last communication of the ATC with the pilot was 'field in sight' and there was no sign or call of distress condition.

Ground-based navigational aid, and aerodrome visual ground aids were all serviceable.

There was no sign of pre-impact distress on the rotating parts of the engine. Furthermore, assessments of the propeller blades suggest the propeller was rotating at the time of impact. Also, there was no evidence of pre-impact fire.

2.2 Conduct of the Flight

The aircraft departed Jalingo at 17:48 h which was 3 minutes to sunset at the intended arrival aerodrome (Yola Airport). At 18:25 h, the pilot reported field in sight which was 34 minutes after sunset at Yola airport. Nig.CARs. *8.8.3.6 (VFR FLIGHTS REQUIRING ATC AUTHORISATION)* prohibits the conduct of VFR flight after sunset. In addition, the Aeronautical Information Publication (AIP) stipulates the time of operation of Yola airport as between 06:00 h to 18:00 h. In view of the fact that PPL holders do not have instrument rating or night flight privileges, this pilot should not have departed Jalingo Airstrip at 18:00 h when the flight plan was filed, since the Estimated Time of Arrival (ETA) at Yola Airport would have been after sunset.

Some of the pilot's statements were incorrect exhibiting inadequate use of aeronautical terminology and communication skills. He also seemed to be unaware of the number of persons onboard. At the crash site, it was ascertained that the aircraft had four persons on board as against six earlier reported by the pilot.

2.3 Pilot's qualification and training

The pilot obtained a Private Pilot Licence (PPL) from the Nigerian College of Aviation Technology (NCAT), Zaria in March, 2011 where he attended a basic training on Cessna 172.

The pilot's assessment was for a PPL with neither instrument rating nor night flight privileges.

It is worthy to note that the Cessna Caravan 208B is rated at 850 hp and as such it is classified as a high-performance aircraft.

Therefore, in accordance with the provision of Nig.CARs 2.3.1.3 this statutorily requires additional training on that type of aircraft. The action of the pilot to fly without proper endorsement is not in accordance with Nig.CARs 2.3.2.7 and 2.3.2.8.

2.4 Throttle control position setting at the crash site

The throttle position was found to be in below-idle beta position. Unless it is specifically permitted by an Airplane Flight Manual, any operation of the power lever below flight idle while in flight must be avoided.

Selection of a power setting below idle will severely change the blade angle and result in a potentially high drag. Such high drag may result in an aerodynamic stall and/or loss of control.

The aircraft crashed on approach. The power lever was found in the beta position at the crash site as against the procedure stipulated in the Airplane Flight Manual. With this setting, the aircraft could have stalled before the intended touch-down point. However, this cannot be conclusively deduced due to the absence of Flight Data Recorders on the aircraft.

2.5 Ministry of Works and Transport Taraba State Government (MWTTSG)

The Ministry of Works and Transport Taraba State Government has been operating as an aviation outfit without evidence of the relevant approval from the NCAA. AIB was unable to sight relevant documents regarding the operation of this aircraft under MWTTSG. There was no evidence to suggest that MWTTSG had a Permit to Fly for Non-Commercial Flight (PNCF) as required by Nig.CARs Part 18.2.4: Air Transport Economic Regulations.

This arrangement does not allow for professional conduct of aviation activities as it relates to flight planning, dispatch and proper risk assessment for flights.

2.6 NCAA Oversight on the operation of 5N-BMJ

The NCAA acknowledged receipt same day, of a letter dated 22nd October 2012 from Skypower Express Airways notifying the Authority of the exclusion of 5N-BMJ from its AOC. There is no evidence to show that relevant actions were taken by the Authority.

An appropriate and prompt action by the Authority could have averted the accident. Recall that the letter was written on the 22nd October, 2012 and the accident occurred on the 25th October, 2012. **See Appendix 5.**

2.7 FAAN: Core functions, Airport Emergency Plan (AEP) and location of structures at Aerodromes

ICAO recommends that airports of this category should have an integrated Airport Emergency Plan in place. Such an emergency plan should be test-run once every 2 years under the supervision of NCAA. There is no evidence to show that this airport has an integrated airport emergency plan despite the fact that it is routinely used for the annual Hajj operations.

The objective of aerodrome emergency planning is to minimize the effects of an emergency, particularly in respect to saving lives and maintaining aircraft operation.

The airport emergency planning sets forth the procedure for coordinating the response of organizations, and/or services, that operate within and outside the airport which have roles to play during any emergency and those communities around the airport who could be of assistance in responding to the emergency.

The critical consideration for AEP is addressed in Airport Services Manual (ICAO Doc 9137).

2.7.1 Response time

The principal and operational objectives of Aircraft Rescue Fire Fighting Service (ARFFS) are:

To save lives in the event of an aircraft accident or incident occurring at or in the immediate vicinity of an aerodrome.

To achieve response time not exceeding three minutes to any point of each runway in optimum visibility and surface conditions.

Yola airport does not have an approved emergency plan, therefore there was no prompt response to the accident site from Yola airport fire service despite the fact that the accident occurred close to the aerodrome.

At 18:32 h, CT informed the airport fire services that it had lost contact with the inbound aircraft. There is no evidence to show that any action was taken in response until 19:10 h when an airport security personnel alerted the airport fire services of the crash close to NNPC depot. A fire truck was dispatched immediately. On reaching the depot, they discovered the road to the crash site was swampy and inaccessible. They left the fire truck behind and headed to the crash site on foot. The team arrived the crash site by 19:52 h (1 hour and 20 minutes after the initial notification) and

discovered that the aircraft's occupants had been rescued from the wreckage by the locals. The fire and rescue team eventually transported the victims to FMC Yola for medical attention.

During the post-accident interviews, the Bureau observed that the firemen at Yola Airport do not have adequate PPE and training in case of emergency. Firemen in Yola airport do not undergo periodic physical fitness test and have not gone for basic life support training.

2.7.2 Terminal building at Yola Aerodrome

It was also observed that the terminal building under renovation constitutes an obstruction to the view of the approach path of runway 35 from the Control Tower. FAAN, being the custodian of the airport could have advised relevant agencies of the safety implication of siting the building at that location.

The Nigerian Airspace Management Agency (NAMA) at Yola Airport had notified its headquarters of the safety implications of the project, with no positive response. Refer to ICAO ANNEX 14 chapter 4: Obstacle Restriction and Removal, Nig.CARs 12.6.8 and Nig.CARs 12.6.20.

Nig.CARs 12.6.8 states that: *An aerodrome operator shall remove from the aerodrome surface any vehicle or other obstruction that is likely to be hazardous.*

The siting of the new terminal building at the Yola Airport should not have been approved, as the building is adversely affecting safety and also obstructing the view of the approach path of runway 35 from the Tower. See Figure 6.

Figure 6: Photo showing the current ATC CT view of the runway

Figure 7: Photo showing the view from the CT with the renovated terminal building obstructing the view of the approach path of runway 35

Figure 8: Photo Showing the CT and NAMA Office at Yola Airport

3.0 CONCLUSION

3.1 Findings

1. The pilot is qualified to fly Cessna 172 and has total logged flying hours of 58 hours and 40 minutes.
2. The pilot has no relevant endorsement to fly Cessna Caravan 208B.
3. The pilot does not have instrument ratings and night flight privileges.
4. The pilot reported an incorrect estimated time of arrival (ETA) at Yola as 10:01 UTC as against the time 17:19 UTC.
5. The pilot reported the number of persons on board as 06 to the CT as against 04 actual persons found after the accident.
6. The flight was conducted after the sunset time in Yola on the day of accident.
7. The Control Tower was notified about 5N-BMJ departure by phone call from Jalingo after the aircraft was airborne.
8. The Bureau was unable to interview the pilot as he was flown out of the country for further medical treatment.
9. The pilot has completed training and obtained a Private Pilot Licence.
10. The aircraft engine had an occurrence of engine overheat/over temperature in December 2011. It was removed and sent to an approved engine workshop in South Africa (Vector Aerospace) for complete repair and overhaul.
11. The engine was reinstalled on the aircraft in April 2012.
12. The engine throttle lever was found below idle (beta) position at the crash site.
13. The fuel samples from both aircraft tanks meet the requirement of AFQRJOS issue 27 check list.
14. The engine exhibited contact signatures to its internal components characteristics of an engine producing power at the time of impact.
15. The engine did not display any indications of any pre-impact anomalies or distress that would have precluded normal engine operation.
16. As at the time the accident occurred, 5N-BMJ and two Bell helicopters were under the maintenance and operational control of MWTTSG.

17. MWTTSG did not have the maintenance and operational capabilities to support the operation of 5N-BMJ.
18. There was no evidence to suggest that MWTTSG had a Permit to Fly for Non-Commercial Flight (PNCF) as required by Nig.CARs part 18.2.4: Air Transport Economic Regulations.
19. Before the arrival of the rescue team to the accident site, the locals had rescued the occupants from the wreckage.
20. The investigation observed that ARFFS personnel at Yola airport have not undergone initial/recurrent physical fitness test and basic life support training.
21. The ambulance parked at the Yola fire station was unserviceable at the time of the accident.
22. The ARFFS team arrived the crash site by 19:52 h (1 hour and 20 minutes after the initial notification) and discovered that the aircraft's occupants had been rescued from the wreckage by the locals.
23. The terminal building being renovated at Yola airport is obstructing the view of the approach path of runway 35 from the Control Tower.

3.2 Causal Factor

The Bureau could not conclusively determine the cause of this accident, however the investigation identified the following factors:

- The pilot was not certified, qualified and not competent to fly the aircraft.
- The decision of the pilot to operate a VFR flight after sunset.
- Inadequate oversight by the Regulatory Authority.

4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2019-001

NAMA should take appropriate action to relocate the existing control tower at Yola Airport in order to enhance the aerial view of the approach path of runway 35 from the Tower.

4.2 Safety Recommendation 2019-002

NCAA should ensure all pertinent regulations with regards to the operations of the aircraft and certification of all relevant personnel and facilities of the Ministry of Works and Transport Taraba State Government are appropriately complied with.

APPENDICES

Appendix 1: NAMA Report

NAMA/YOL/ATC/01/VOL.I/24
15th August, 2012

The Managing Director/Chief Executive Officer
Nigerian Airspace Management Agency
Headquarters
P. M. B. 21094
Ikeja – Lagos.

ATTENTION:- The Director of Operations (DOO)

Through: - The Airspace Manager
NAMA, Yola Airport

OBSTRUCTION OF THE CONTROL TOWER.

The new terminal building under construction located adjacent to the Control Tower has constituted an obstruction. The building is taller and ahead of the tower such that it obstructs the viewing of the approach path runway 35 from the tower.

Given the significant role of the tower in ensuring flight safety as well as security, it is important that all necessary actions are taken quickly to arrest any unforeseen incident due to deficiency highlighted.

Thanks.

For: ATOM

Appendix 2: Tear Down Report

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Une société de United Technologies / A United Technologies Company

Service Investigation
Accident / Incident Report
P&WC 8114 (11-98)

Report No.: 12-112

Taraba State Government
Grand Caravan 208B, Registration # 5N-BMJ
Yola, Adamawa, Nigeria
25 October 2012
PT6A-114A
PCE PC1621

Written By:

Approved By:

Date of Issue: **23 April 2018**

Distribution :

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I ANALYSIS

1.0 ACCIDENT SYNOPSIS

It was reported that on October 25, 2012 during approach of a Cessna Grand Caravan Model 208B, Tail No. 5N-BMJ, the pilot at 1720 Zulu time (Z) informed the airport control that the field was insight and estimated landing at 1730Z. Radar contact was lost before the aircraft was supposed to land. The wreckage was found in hilly terrain. All aboard were found to have various degrees of injuries. The State Governor was said to be flying the aircraft at the time of the accident.

2.0 SUMMARY OF FINDINGS

Rotational signatures were found on the compressor turbine and power turbine indicating they were rotating under power at impact.

The bent compressor blades indicates the compressor was rotating under power during impact with the terrain.

There were no indications of any pre-impact distress found to any of the examined components.

3.0 CONCLUSIONS

The engine exhibited contact signatures to its internal components characteristic of an engine producing power at the time of impact.

The engine did not display any indications of any pre-impact anomalies or distress that would have precluded normal engine operation.

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II FACTUAL INFORMATION

1.0 INVESTIGATION PARTICIPANTS

The powerplant investigation was performed on February 05 and 06, 2018 at the Pratt & Whitney Canada (P&WC) Service Investigation Facilities located at St. Hubert, Quebec, Canada. The following individuals participated in the investigation as representatives of their respective organisations:

Accident Investigation Bureau (Nigeria)
Director of Operations

Accident Investigation Bureau (Nigeria)
Air Safety Investigator

Pratt & Whitney Canada
External Controls Nacelle Technical Support
Air Safety Investigator

Pratt & Whitney Canada
External Controls Nacelle Technical Support
Air Safety Investigator

Pratt & Whitney Canada
Service Investigator

Pratt & Whitney Canada
Service Investigator

2.0 ENGINE HISTORY

PT6A-114A S/N PCE PC1621

Hours Since New: 898.5 (as of 02 December 2011 at which time over temperature and hot section refurbishment was accomplished)

Cycles Since New: 756 (as of 02 December 2011)

Hours Since Overhaul: Not Applicable (N/A)

Cycles Since Overhaul: N/A

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Service Investigator

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Service Investigator

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3.0 ENGINE EXAMINATION

All positional references are in relation to the view from aft looking forward. Upstream and downstream references are in relation to gas path flow from the compressor inlet to exhaust.

3.1 External Condition

The engine was received in three packages; "boxed" and wrapped (Photo No. 1). Unwrapping the packages revealed the gas generator section, an incomplete power turbine module and the accessories gearbox with part of the front inlet (Photo Nos. 2, 3 and 4 respectively). The reduction gearbox (RGB) front housing, power turbine stator, and the power turbine housing assembly were missing. The engine data plate showed the engine serial number was PCE PC1621 (Photo No. 5).

Photo No. 1
Engine as received

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Photo No. 2
Gas generator section

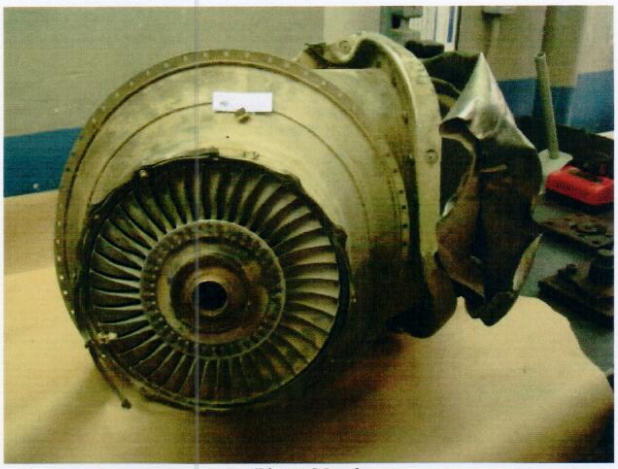

Photo No. 3
Power turbine module section as received

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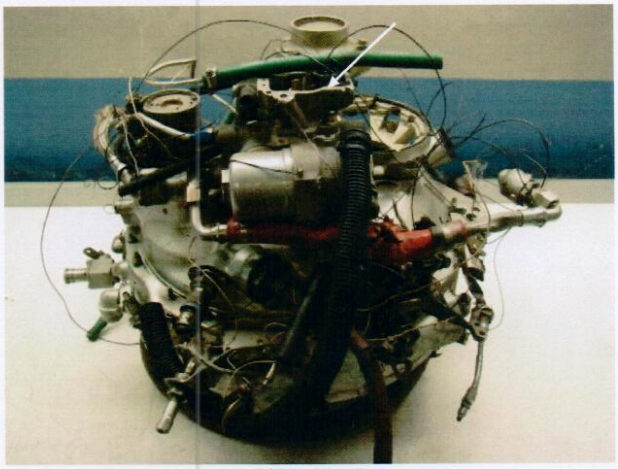

Photo No. 4
Accessories gearbox section

Photo No. 5
Engine data plate

3.1.1 **External Cases**

Reduction Gearbox: The reduction gearbox rear housing section was fractured from the front housing at the "A' flange (Photo No. 6). The front housing was not received.

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Photo No. 6
Exhaust case showing rear RGB housing

Exhaust Duct: The exhaust duct was crumpled due to impact with the ground and had also separated at the "C" and "D" flanges (Photo Nos. 3, 6 and 7).

Photo No. 7
Exhaust duct

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Gas Generator Case: The gas generator case showed mechanical damages from impact with the terrain (Photo No. 8). Torsional deformation and mechanical deformation was also observed in the inner support housing (arrows, Photo No. 9).

Photo No. 8
Gas generator case

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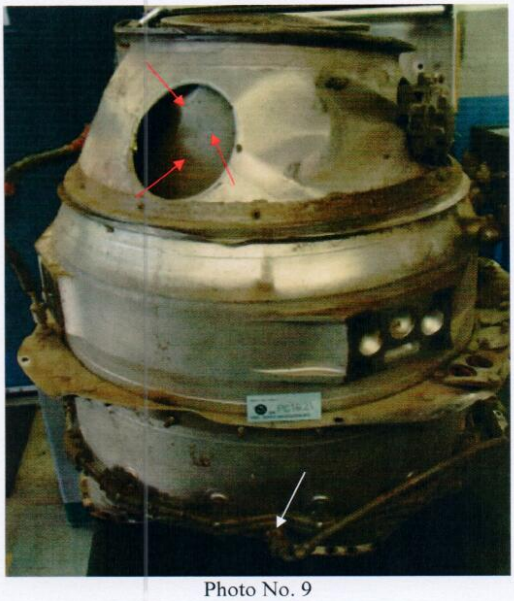

Photo No. 9
Rotated view of gas generator case

Accessory Gearbox: The accessory gearbox was intact and was still attached at flange "G" to the inlet case, which had fractured from the gas generator case at flange "F" (Photo No. 10).

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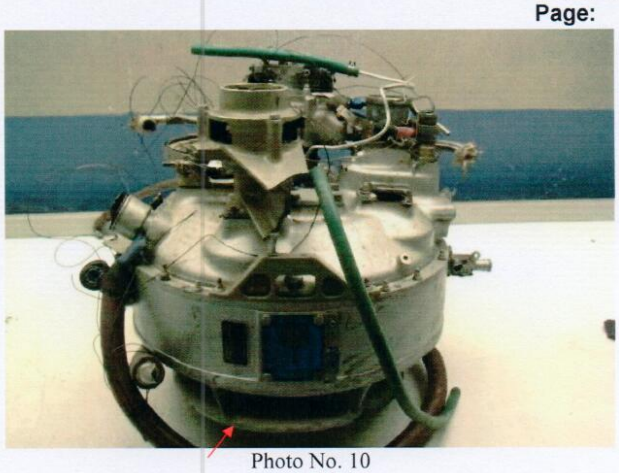

Photo No. 10
View showing AGB attached to front inlet case which was separated from gas generator case at flange "F" (arrow)

3.1.2 **Power Control and Reversing Linkage**

Due to the extensive damages and missing components the power control and reversing linkages could not be verified.

3.1.3 **Pneumatic Lines**

Due to the extensive damages and missing components the continuity of the P3 and Py lines could not be verified. Although the P3 connection at the gas generator P3 boss was still in place and secure (Photo No. 11).

Photo No. 11
Gas generator case P3 boss connection

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3.1.4 Chip Detectors and Filters

Reduction Gearbox Chip Detector: Was not received.

Accessories Gearbox Chip Detector: Showed no metal debris accumulation, however, mold deposits were observed on the detector surface (arrows, Photo No. 12).

Photo No. 12

Oil Filter: The main oil filter was found clean.

Fuel Filter: The outlet filter was dark and there was dark residue in the outlet filter bowl (Photo Nos. 13 and 14). The residue was analyzed by the P&WC Chemical Laboratory and was identified as low-decomposition temperature material such as solvent or fuel, organic material and silicon with traces of aluminum, sodium, iron-oxide and carbon.

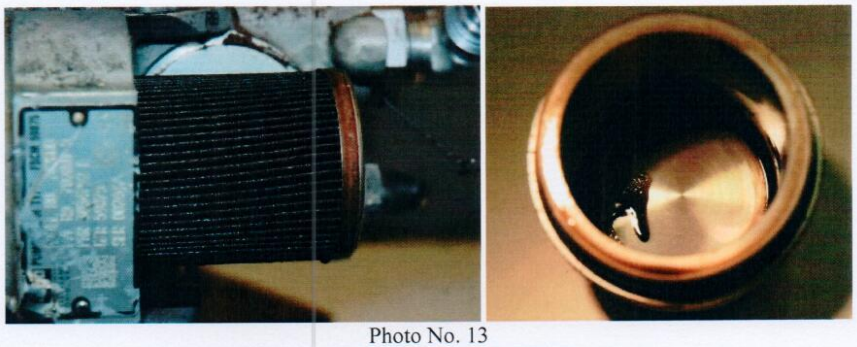

Photo No. 13
Fuel pump outlet filter and filter bowl

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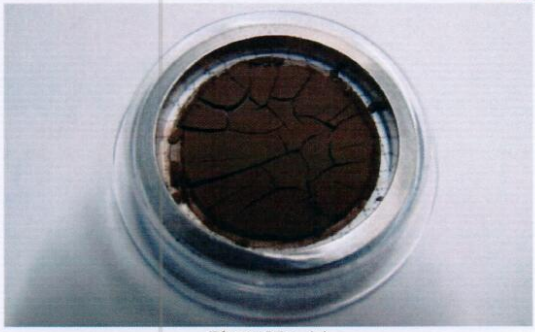

Photo No. 14
Fuel pump outlet filter residue

3.2 Disassembly Observations

3.2.1 Compressor Section

The compressor showed dirt ingestion. The compressor could not be rotated. The first stage compressor rotor blades showed foreign object impact damages and bending of blade tips in the direction opposite the rotation (Photo No. 15). The compressor rear coupling hub was fractured off due to impact. The compressor was not accessed further for the purpose of this investigation.

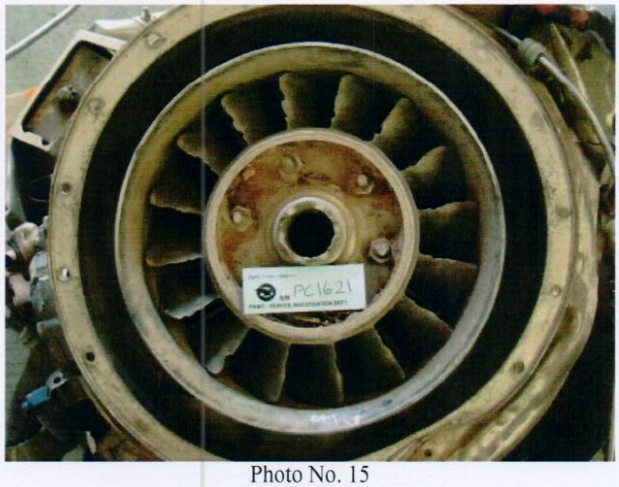

Photo No. 15
First stage compressor rotor

Front Stub Shaft: The front stub shaft was not accessed for the purpose of this investigation.

No. 1 Bearing: The No. 1 ball bearing was found intact within the fractured front housing section. Although it was not disassembled it could be rotated freely by hand.

No. 2 Bearing and Airseals: The No. 2 roller bearing which was not removed exhibited no distress, but due to impact damages to the compressor it could not be rotated.

3.2.2 **Combustion Section**

Combustion Chamber Liner: The combustion liner was mechanically damaged and as a result could not be removed. No pre-event anomaly was observed with the combustion chamber (Photo No. 16).

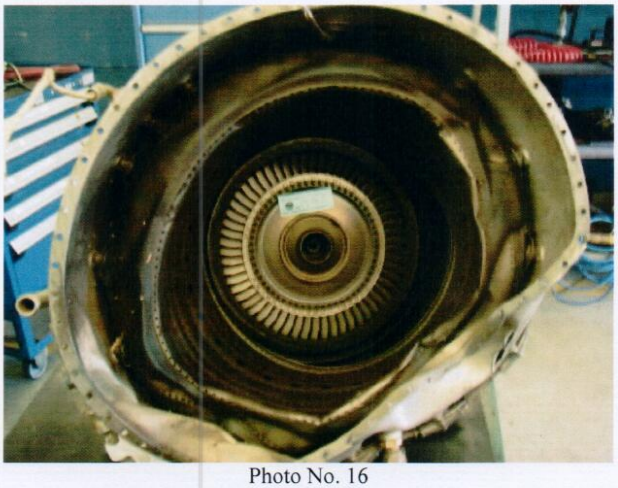

Photo No. 16
Combustion chamber

Large Exit Duct: The large exit duct was not accessed for purposes of this investigation.

Small Exit Duct: The small exit duct was not accessed for purposes of this investigation.

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3.2.3 Turbine Section

Compressor Turbine Guide Vane Ring: The compressor turbine vane ring appeared in good condition with no distress of the vanes (arrow, Photo No. 17). Circumferential rubbing wear was observed on the inner shroud wall from contact with the platform region of the compressor turbine blades.

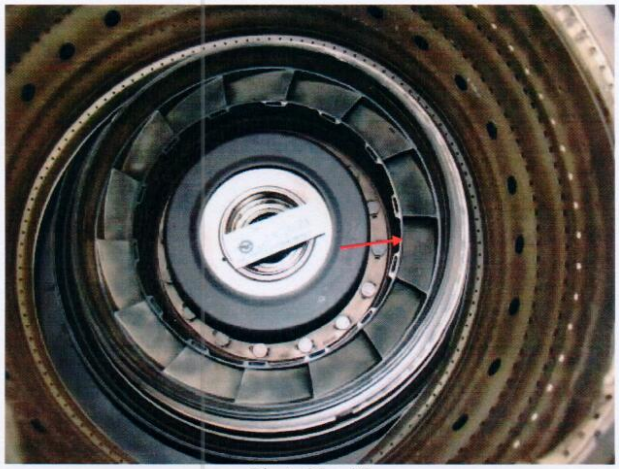

Photo No. 17
Compressor turbine vane ring

Compressor Turbine Shroud: The compressor turbine shroud segments showed circumferential rubbing (arrow, Photo No. 18).

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Photo No. 18
Compressor turbine shroud segments

Compressor Turbine: The compressor turbine blades showed no distress (Photo No. 19). The downstream side showed circumferential rubbing on the blades and disc firtree region and on the disc face (arrows, Photo No. 19 and 20). The upstream surface of the compressor turbine showed some rubbing in the platform region of the compressor turbine blades from contact with the compressor turbine vane ring inner shroud wall (arrows, Photo Nos. 21 and 22).

Photo No. 19
Compressor turbine insitu

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Photo No. 20
Compressor turbine removed, downstream side

Photo No. 21
Compressor turbine removed, upstream side

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Photo No. 22
Close-up view of platform rubbing contact

ITT Probes, Busbar, and Harness: Was not received.

Power Turbine Housing: Was not received.

Power Turbine Guide Vane Ring and Interstage Baffle: Was not received.

Power Turbine Shroud: The power turbine shroud was mechanically distorted and showed significant rubbing contact from the power turbine blade tip shrouds (Photo Nos. 23 and 24).

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Photo No. 23
Power turbine shroud

Photo No. 24
Close-up view of power turbine shroud

Power Turbine: The power turbine blades showed no distress (Photo No. 3). The upstream side showed circumferential rubbing on the blades leading edge platform, near the base of the blades and on the leading edge of the blade shroud tips (arrows, Photo Nos. 25 and 26). The shroud tips showed significant rubbing wear and heat discoloration from contact with the power turbine shroud (arrows, Photo No. 27). The downstream surface of the power turbine showed some rubbing in the firtree region of the power turbine disc (arrow, Photo No. 28).

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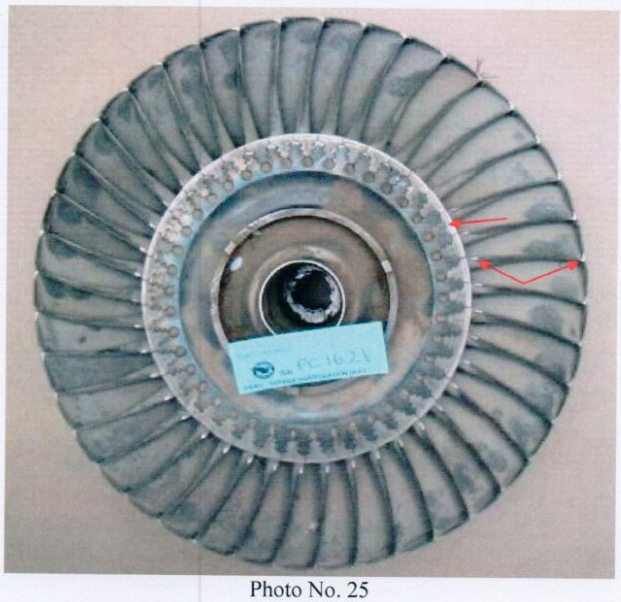

Photo No. 25
Power turbine removed, upstream side

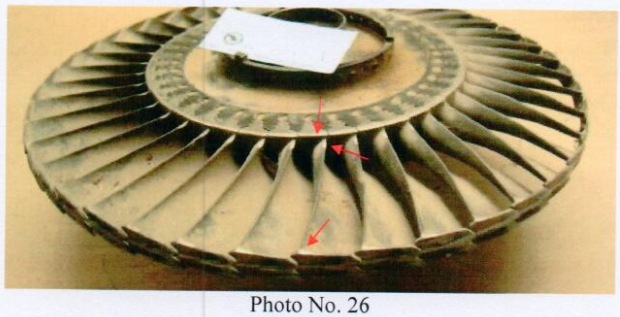

Photo No. 26
Power turbine showing circumferential rubbing wear

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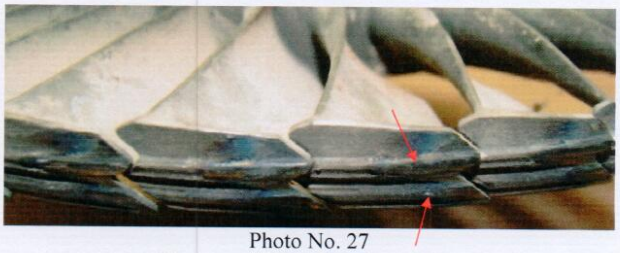

Photo No. 27
Power turbine blades shroud tips

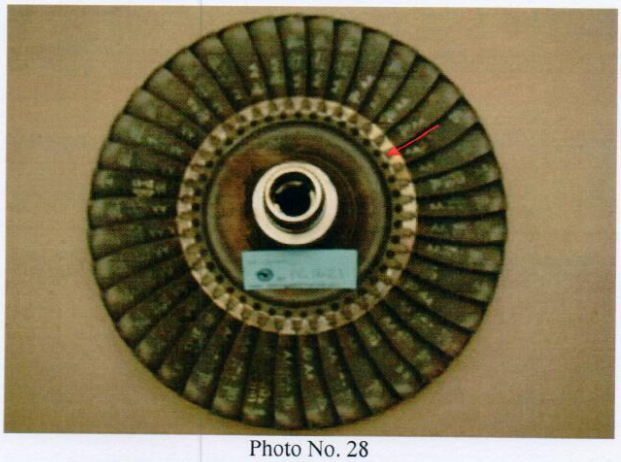

Photo No. 28
Power turbine removed, downstream side

Power Turbine Shaft and Shaft Housing: The power turbine shaft and shaft housing was intact (Photo Nos. 29 and 30 respectively). The No. 4 bearing showed environmental debris deposit on its surface (Photo No. 31). One flange of the No. 4 bearing and part of the outer ring raceway was found fractured (arrows, Photo No. 31).

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Photo No. 29
Power turbine shaft and fractured No. 4 bearing

Photo No. 30
Power turbine shaft housing

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Photo No. 31
No. 4 ball bearing

3.2.4 **Reduction Gearbox**

The power turbine module as received exhibited fracture of the rear housing at the "A" flange (Photo No. 6). All the front housing components including the front housing were not received.

Rear Housing: The rear housing was fractured (Photo No. 32).

Photo No. 32
Reduction gearbox rear housing and thermal blanket

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1st Stage Sungear: The 1st stage sungear showed no distress (Photo No. 33)

Photo No. 33
1st Stage sungear

1st Stage Planet Gear Carrier: The 1st stage planet gear carrier, which showed discoloration due to environmental exposure and debris deposit, showed no prior distress; however the second stage sungear coupling assembly mounting boss was fractured off (arrow, Photo 34). The fracture surface morphology after some cleaning appeared indicative of torsional shear (Photo Nos. 35 and 36).

Photo No. 34
1st Stage planet gear carrier and planet gears

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Photo No. 35

Photo No. 36

1st Stage Planet Gears: The 1st stage planet gears were discoloured due to environmental exposure (Photo No. 37). Removal of the 1st stage planet gear carrier allowed the planet gears to be rotated freely by hand and exhibited no prior distress.

1st Stage Ring Gear: The 1st stage ring gear was discoloured due to environmental exposure but otherwise showed no prior distress (Photo No. 35).

Photo No. 357
1st Stage ring gear

Torque Meter: Was not accessed for the purpose of this investigation.

3.2.5 **Accessory Gearbox**: The accessory gearbox gear train with the remnants of the accessories removed could be rotated by hand (Photo No. 38). None of the accessories gear shafts showed any distress (Photo No. 39). The accessory gearbox upon disassembly was found to be contaminated over all the inner surface with mold that required decontamination before further disassembly was possible. All the accessories bearings were found in good condition with no evidence of distress (Photo No. 40 and 41). The main oil pump and scavenge pumps could be rotated by hand (Photo No. 42). The main oil tank showed no metal debris contamination (Photo No. 43).

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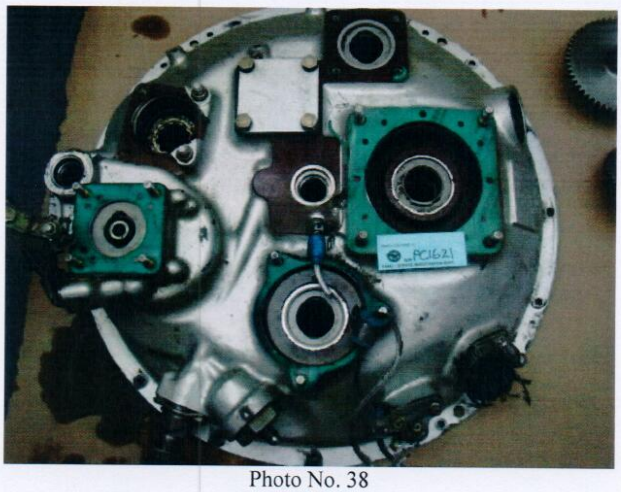

Photo No. 38

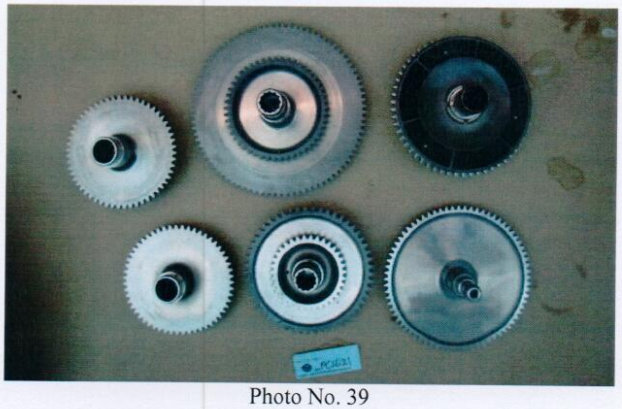

Photo No. 39

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Photo No. 40
Accessories bearings in the accessories gearbox diaphragm

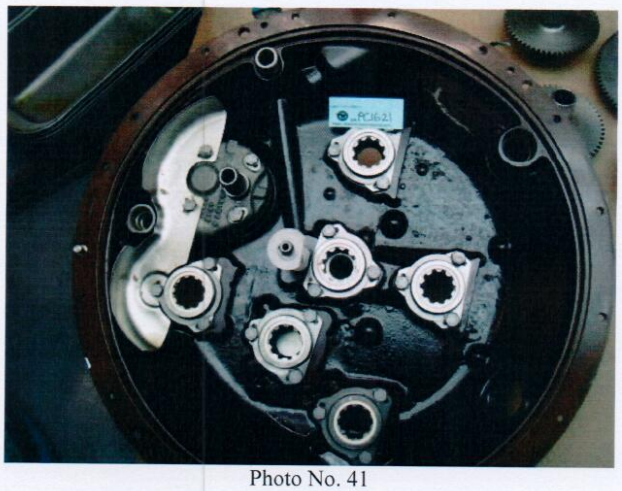

Photo No. 41
Accessories gearbox front housing

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Photo No. 42
Main oil pump

Photo No. 43
Main oil tank

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3.3 Controls and Accessories Evaluation

3.3.1 Ignition System

Exciter Box: Was not received.

Ignition Leads: The ignition leads were fractured with only the portion found secured to the ignition plugs still evident.

Ignition Plugs: The ignition plugs showed exposure to environmental elements but no prior distress (Photo No. 44).

Photo No. 44
Ignitor plugs

3.3.2 Fuel System

Fuel Heater: Was not received.

Fuel Pump: The fuel pump was in place and was removed and investigated by the External Controls Nacelle Technical Support Investigator. The exterior of the fuel pump was soiled. The driveshaft turned by hand with typical resistance. Rust colored staining was present at the drain port in the driveshaft housing (Photo No. 45). Prior to testing the fuel pump the inlet screen was removed. There was granular debris inside the inlet screen. Chemical laboratory analysis of the inlet screen residue identified silicone oxide, aluminum, iron-rich particles with titanium. Due to the degree of exposure to the environment it could not be determined if the contaminants were present before or after the event. Testing of the fuel pump was found satisfactory.

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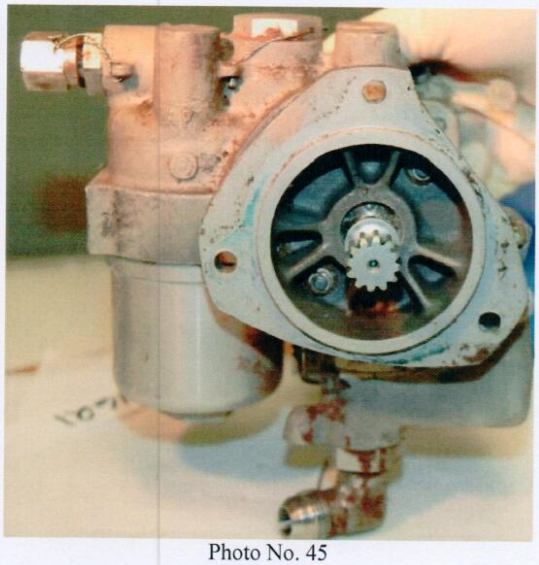

Photo No. 45
Fuel pump

Fuel Control Unit: The fuel control unit flow body section was fractured off at the drive body exposing the governor drive shaft assembly (white arrow Photo No. 4 and black arrow, Photo No. 46). The fuel control unit was removed and investigated by the External Controls Nacelle Technical Support Investigator. The only piece of the FCU that was received was the incomplete drive-body (Photo No. 47). The driveshaft cap bearing and governor levers were missing. The tip of the driveshaft was bent, the Teflon tube was present and appeared to be intact. The inlet and outlet of the air adapter was incomplete. There was no obstruction in the Py bleed or Py orifice. Typical bearing grease splatter was present on the driveshaft bearing retaining plate (Photo No. 48). The plastic drive-coupling was present and intact. The flow body was not received. Lockwire was present at the air adapter screws. The lockwire seal was marked ECD (Honeywell Engine Control Systems Division). There were two lockwire seals on the lockwire at the idle stop screw. There were no discernable identification marks on these seals. The extent of damage to the fuel control unit precluded determination of any potential pre-impact operational anomalies.

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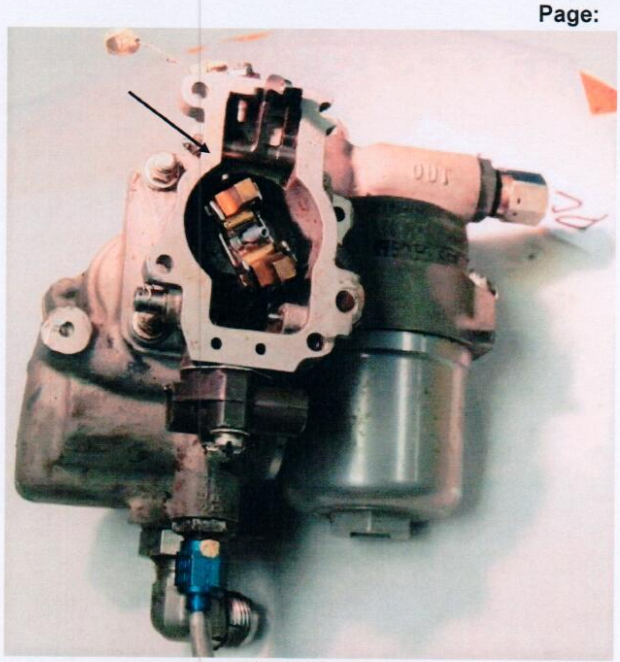

Photo No. 46
Fuel pump with remnants of fuel control unit (arrow)

Photo No. 36
Fuel control unit incomplete drive body

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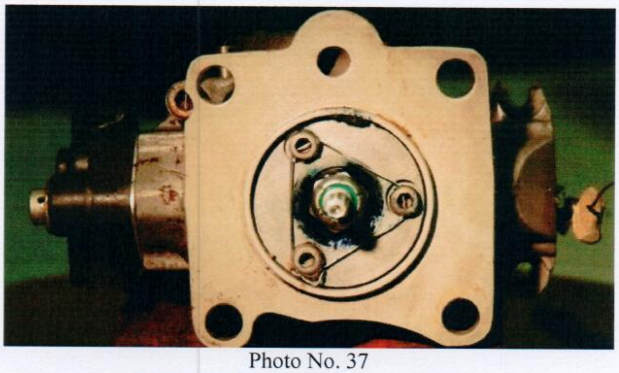

Photo No. 37
Fuel control unit driveshaft bearing retaining plate

Flow Divider: The flow divider was in place (white arrow Photo No. 49). The flow divider was removed and investigated by the External Controls Nacelle Technical Support Investigator. The exterior of the flow divider valve (FDV) was soiled (Photo No. 50). There were no significant scratches or leak-paths visible on the mounting face or in the packing grooves. Lockwire was present at the dump-valve fitting screws. The FDV was tested. The test was satisfactory.

Photo No. 389
Flow divider (white arrow) on gas generator case and bleed off valve (red arrow)

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Photo No. 50
Flow divider

Fuel Nozzles: The fuel nozzles were all found in place (Photo Nos. 8, 9 and 49). The fuel nozzles were removed and investigated by the External Controls Nacelle Technical Support Investigator. The tips of the fuel nozzle sheaths were blackened (Photo No. 51). The fuel nozzle adapters were soiled. A small amount of organic debris was present inside some of the nozzle sheaths. Slight soot accumulation was present at each nozzle tip. Lock-washers were present at each nozzle tip. Streaks were observed during testing of three of the 14 fuel nozzles (Photo No. 52). The streaks observed would not have contributed to hot section damages.

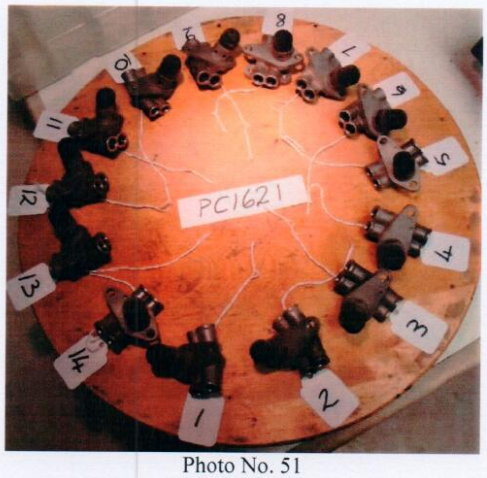

Photo No. 51
Fuel Nozzles

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Photo No. 52
Fuel nozzle 4 (left), 7 (centre) and 12 (right) with their sheaths removed before testing

3.3.3 **Air System:**

Compressor Bleed Valve: The compressor bleed valve showed impact damage resulting in the fracture of the bleed valve retaining cover (red arrow, Photo No. 49). The compressor bleed valve was removed and investigated by the External Controls Nacelle Technical Support Investigator. The exterior of the compressor bleed valve (BOV) was soiled. The housing was incomplete, a piece of the housing and cover were fractured and missing (Photo No. 53). Lockwire was present at all locations. The diaphragm was torn at the fracture location (arrow impact damage, Photo No. 54). The piston moved freely in the housing. The inside of the BOV housing was clean, but there was a fracture across the housing (Photo No. 55).

Photo No. 53
Compressor bleed off valve

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Photo No. 54
Bleed off valve diaphragm

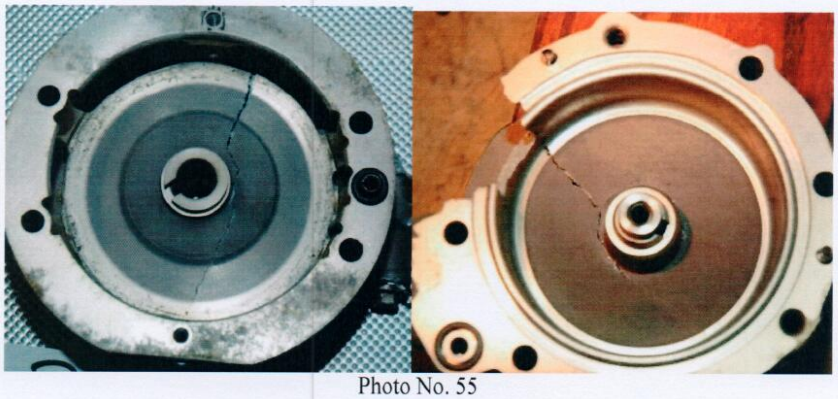

Photo No. 55
Bleed off valve housing

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Photo No. 54
Bleed off valve diaphragm

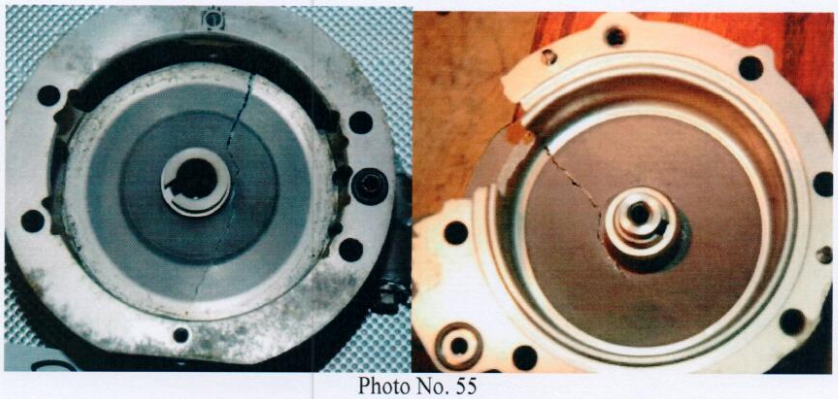

Photo No. 55
Bleed off valve housing

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3.3.4 **Oil System:**

Propeller Governor: Was not received.

Overspeed Governor: Was not received.

Appendix 3: NAFDAC Result

NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

NAFDAC CORPORATE HQ:
Plot 2032 Olusegun Obasanjo Way,
Wuse Zone 7, Abuja
Tel: +234-9-6718008
E-mail: nafdac@nafdac.gov.ng
website: www.nafdac.gov.ng

LAGOS LIAISON OFFICE:
Central Laboratory
No 3/5 Oshodi Apapa Expressway
Lagos State.
Tel: +234-1-4730643

OFFICE OF THE DIRECTOR-GENERAL

5th August, 2013

The Commissioner/ CEO
Accident Investigation Bureau
Murtala Muhammed International Airport,
Ikeja, Lagos.

Dear Sir,

RE: INVESTIGATION INTO THE ACCIDENT INVOLVING CESSNA 208 B CARAVAN AIRCRAFT REGISTERED 5N-BMJ WHICH OCCURRED AT KONA-WAYA SOUTH LGA OF ADAMAWA STATE ON 25TH OCTOBER, 2012.

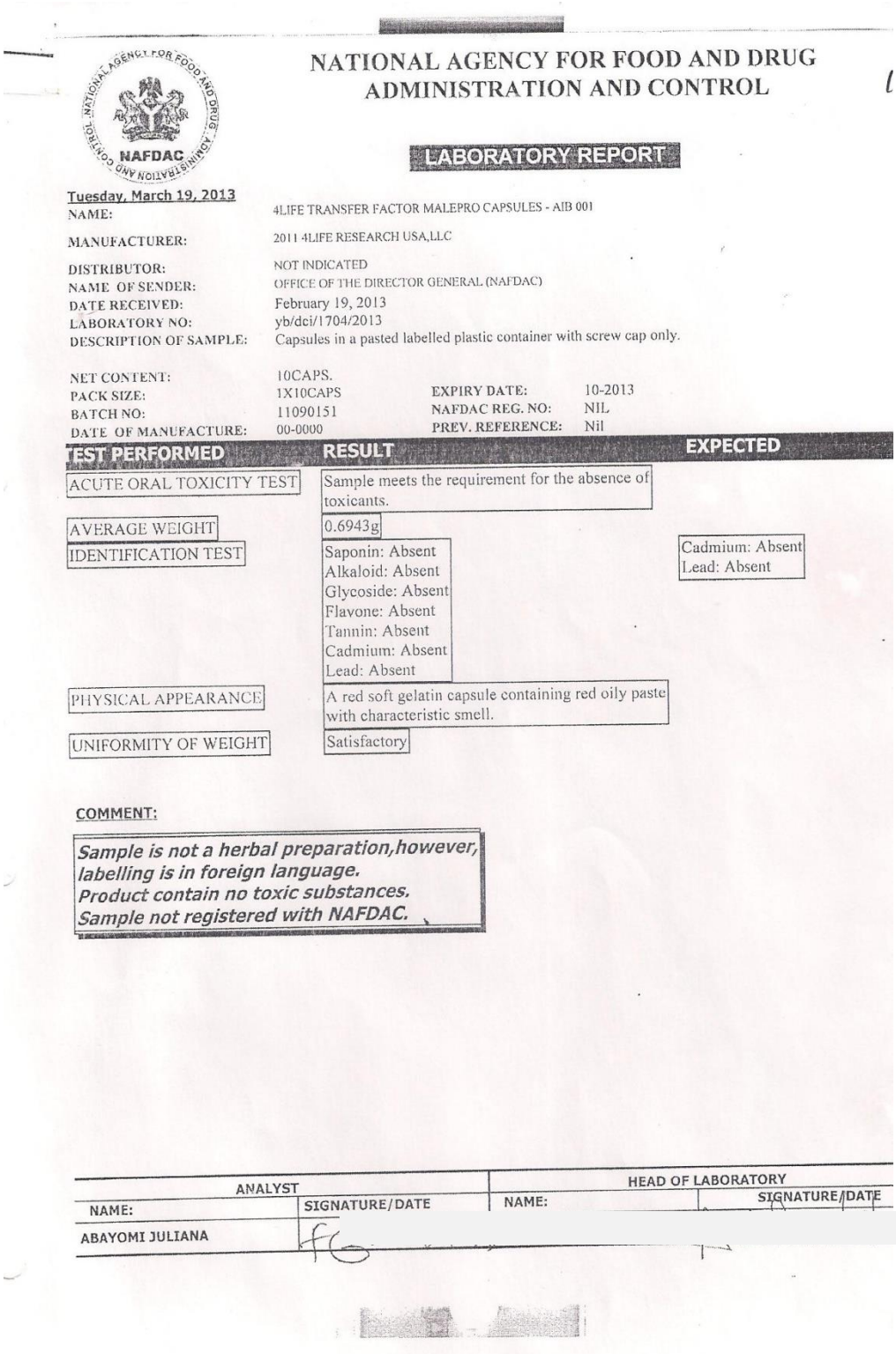
Due apologies for lateness in responding to your request to the agency to conduct tests and analyses on the drugs that were recovered from the cockpit area of the accident aircraft. We had to wait for the report of some of the laboratory analysis that required a lengthy process.

The submitted drugs were duly used to conduct analysis by the Laboratory Services Directorate of the Agency and the reports on 5 of the products are attached. The comprehensive report on Fexofenadine and Copegus 200mg are being awaited and will be promptly forwarded

The safety profile of the drugs has also been extensively researched and compiled detailing their pharmacological classifications and side effects as attached also.

The Agency is however not in a position to elaborate on the effect of the drugs on human performance during flight operations.

Please accept the Assurances of my high regards.



NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

LABORATORY REPORT

Tuesday, March 19, 2013

NAME:	4LIFE TRANSFER FACTOR MALEPRO CAPSULES - AIB 001
MANUFACTURER:	2011 4LIFE RESEARCH USA,LLC
DISTRIBUTOR:	NOT INDICATED
NAME OF SENDER:	OFFICE OF THE DIRECTOR GENERAL (NAFDAC)
DATE RECEIVED:	February 19, 2013
LABORATORY NO:	yb/dci/1704/2013
DESCRIPTION OF SAMPLE:	Capsules in a pasted labelled plastic container with screw cap only.

NET CONTENT:	10CAPS.		
PACK SIZE:	1X10CAPS	EXPIRY DATE:	10-2013
BATCH NO:	11090151	NAFDAC REG. NO:	NIL
DATE OF MANUFACTURE:	00-0000	PREV. REFERENCE:	Nil

TEST PERFORMED	RESULT	EXPECTED
ACUTE ORAL TOXICITY TEST	Sample meets the requirement for the absence of toxicants.	
AVERAGE WEIGHT	0.6943g	
IDENTIFICATION TEST	Saponin: Absent Alkaloid: Absent Glycoside: Absent Flavone: Absent Tannin: Absent Cadmium: Absent Lead: Absent	Cadmium: Absent Lead: Absent
PHYSICAL APPEARANCE	A red soft gelatin capsule containing red oily paste with characteristic smell.	
UNIFORMITY OF WEIGHT	Satisfactory	

COMMENT:

Sample is not a herbal preparation,however, labelling is in foreign language. Product contain no toxic substances. Sample not registered with NAFDAC.

ANALYST		HEAD OF LABORATORY	
NAME:	SIGNATURE/DATE	NAME:	SIGNATURE/DATE
ABAYOMI JULIANA			

NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

LABORATORY REPORT

Thursday, March 21, 2013

NAME:	4LIFE TRANSFER FACTOR PLUS CAPS. - AIB 004		
MANUFACTURER:	2009 4LIFE RESEARCH USA,LLC		
DISTRIBUTOR:	NOT INDICATED		
NAME OF SENDER:	OFFICE OF THE DIRECTOR GENERAL (NAFDAC)		
DATE RECEIVED:	February 19, 2013		
LABORATORY NO:	yb/dci/1702/2013		
DESCRIPTION OF SAMPLE:	Capsules in a pasted labelled plastic container with screw cap only.		
NET CONTENT:	20CAPS.		
PACK SIZE:	1X20CAPS	EXPIRY DATE:	06-2013
BATCH NO:	11040047	NAFDAC REG. NO:	NIL
DATE OF MANUFACTURE:	00-0000	PREV. REFERENCE:	Nil

TEST PERFORMED	RESULT	EXPECTED
ACUTE ORAL TOXICITY TEST	Sample meets the requirement for the absence of toxicants.	
AVERAGE WEIGHT	0.4248g	
IDENTIFICATION TEST	Saponin: Absent Alkaloid: Absent Glycoside: Absent Flavone: Absent Tannin: Absent Cadmium: Absent Lead: Absent Zinc: Present	Cadmium: Absent Lead: Absent Zinc: Present
PHYSICAL APPEARANCE	A transparent hard gelatin capsule containing light brown pellets with characteristic smell.	
UNIFORMITY OF WEIGHT	Satisfactory	
DISINTEGRATION TIME	24 mins	Max. 30 mins

COMMENT:

**Sample is satisfactory as per above analytical parameters subject to GMP.*
**Sample has no Registration Number.*
**Date of manufacture not indicated.*

ANALYST		HEAD OF LABORATORY	
NAME:	SIGNATURE/DATE	NAME:	SIGNATURE/DATE
ABAYOMI JULIANA			

NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

LABORATORY REPORT

Tuesday, March 12, 2013

NAME:	LOXAGYL 400 TABLETS - AIB 002
MANUFACTURER:	MAYER & BAKER NIGERIA PLC 3/5 SAPARA STREET, INDUSTRIAL ESTATE, IKEJA,LAGOS
DISTRIBUTOR:	SAME AS ABOVE
NAME OF SENDER:	OFFICE OF THE DIRECTOR GENERAL (NAFDAC)
DATE RECEIVED:	February 19, 2013
LABORATORY NO:	yb/dci/1708/2013
DESCRIPTION OF SAMPLE:	Tablets in labelled blister strips in a labelled hard board packaging.

NET CONTENT:	100TABS.		
PACK SIZE:	1X10X10TABE	**EXPIRY DATE:**	02-2017
BATCH NO:	MB 257	**NAFDAC REG. NO:**	04-5566
DATE OF MANUFACTURE:	03-2012	**PREV. REFERENCE:**	Nil

TEST PERFORMED	RESULT	EXPECTED
FUNGI(YEAST/MOULD)	Less than 10 cfu / g	Not more than 100 cfu / g
NON PATHOGENIC BACTERIA	Less than 10 cfu / g	Not more than 1000 cfu / g
PATHOGENIC BACTERIA	Staphylococcus aureus: Absent Escherichia coli: Absent Pseudomonas aeruginosa : Absent Salmonella spp: Absent	Staphylococcus aureus: Absent Escherichia coli: Absent Pseudomonas aeruginosa : Absent Salmonella spp: Absent
DISINTEGRATION TIME	4 mins	Max. 30 mins
HARDNESS	110.8N	NLT 20N
AVERAGE WEIGHT	0.4982g	
CONTENT OF ACTIVE INGREDIENT/TABLET	Metronidazole: 418.74mg [104.69%]	400mg [95- 105%]
IDENTIFICATION TEST	Metronidazole present	
PHYSICAL APPEARANCE	Yellow, circular, biconvex, uncoated tablet with "LOXAGYL 400" engraved on the scored side and "MBN" on the other.	
UNIFORMITY OF WEIGHT	Satisfactory	

COMMENT:

Sample is satisfactory as per above parameters subject to GMP.

ANALYST		HEAD OF LABORATORY	
NAME:	**SIGNATURE/DATE**	**NAME:**	**SIGNATURE/DATE**
ADEKUNLE-SEGUN OLAWALE			

NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

LABORATORY REPORT

Thursday, March 21, 2013

NAME:	4LIFE TRANSFER FACTOR GLUCOACH CAPSULES - AIB 005
MANUFACTURER:	4LIFE 9850 SOUTH 300 WEST SANDY,UT 84070
DISTRIBUTOR:	NOT INDICATED
NAME OF SENDER:	OFFICE OF THE DIRECTOR GENERAL (NAFDAC)
DATE RECEIVED:	February 19, 2013
LABORATORY NO:	yb/dci/1706/2013
DESCRIPTION OF SAMPLE:	Capsules in a pasted labelled plastic container with screw cap only.
NET CONTENT:	20CAPS.
PACK SIZE:	1X20CAPS
BATCH NO:	10100089
DATE OF MANUFACTURE:	00-0000
EXPIRY DATE:	11-2012
NAFDAC REG. NO:	NIL
PREV. REFERENCE:	Nil

TEST PERFORMED	RESULT	EXPECTED
DISINTEGRATION TIME	27 mins	Max. 30 mins
ACUTE ORAL TOXICITY TEST	Sample meets the requirement for the absence of toxicants.	
AVERAGE WEIGHT	0.5069g	
IDENTIFICATION TEST	Saponin: Present Alkaloid: Present Glycoside: Present Flavone: Present Tannin: Present Cadmium: Absent Lead: Absent	Cadmium: Absent Lead: Absent
PHYSICAL APPEARANCE	A transparent hard gelatin capsule containing black pellets with offensive odour.	
UNIFORMITY OF WEIGHT	Satisfactory	

COMMENT:

UNSATISFACTORY
****Expired Product***
****Date of Manufacture not indicated.***
****Sample has no NAFDAC Registration Number.***

ANALYST		HEAD OF LABORATORY	
NAME:	SIGNATURE/DATE	NAME:	SIGNATURE/DATE
ABAYOMI JULIANA			

NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

LABORATORY REPORT

Thursday, March 21, 2013

NAME:	BARLEY POWER TABLETS - AIB 007		
MANUFACTURER:	NOT INDICATED		
DISTRIBUTOR:	NOT INDICATED		
NAME OF SENDER:	OFFICE OF THE DIRECTOR GENERAL (NAFDAC)		
DATE RECEIVED:	February 19, 2013		
LABORATORY NO:	yb/dci/1715/2013		
DESCRIPTION OF SAMPLE:	Tablets in a pasted labelled plastic container with screw cap only		
NET CONTENT:	15TABS.		
PACK SIZE:	1X15TABLETS	EXPIRY DATE:	04-2013
BATCH NO:	22099	NAFDAC REG. NO:	NIL
DATE OF MANUFACTURE:	00-0000	PREV. REFERENCE:	Nil

TEST PERFORMED	RESULT	EXPECTED
DISINTEGRATION TIME	@ 1hr 30 mins, non disintegrated.	Max. 30 mins
HARDNESS	60.0N	NLT 20N
ACUTE ORAL TOXICITY TEST	Sample meets the requiorement for the absence of toxicants.	
AVERAGE WEIGHT	0.5885g	
IDENTIFICATION TEST	Saponin: Absent Alkaloid: Absent Glycoside: Absent Flavone: Present Tannin: Absent Cadmium: Absent Lead: Absent	Cadmium: Absent Lead: Absent
PHYSICAL APPEARANCE	A mottled green circular uncoated tablet without inscriptions.	
UNIFORMITY OF WEIGHT	Satisfactory	

COMMENT:

UNSATISFACTORY
****None of the capsules disintegrated even at a time well above specification.***
****Manufacturer's name and address not stated.***
****No manufacturing date.***
****Product has no NAFDAC Registration Number.***

ANALYST		HEAD OF LABORATORY	
NAME:	SIGNATURE/DATE	NAME:	SIGNATURE/DATE
ABAYOMI JULIANA			

NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

LABORATORY REPORT

Thursday, August 1, 2013

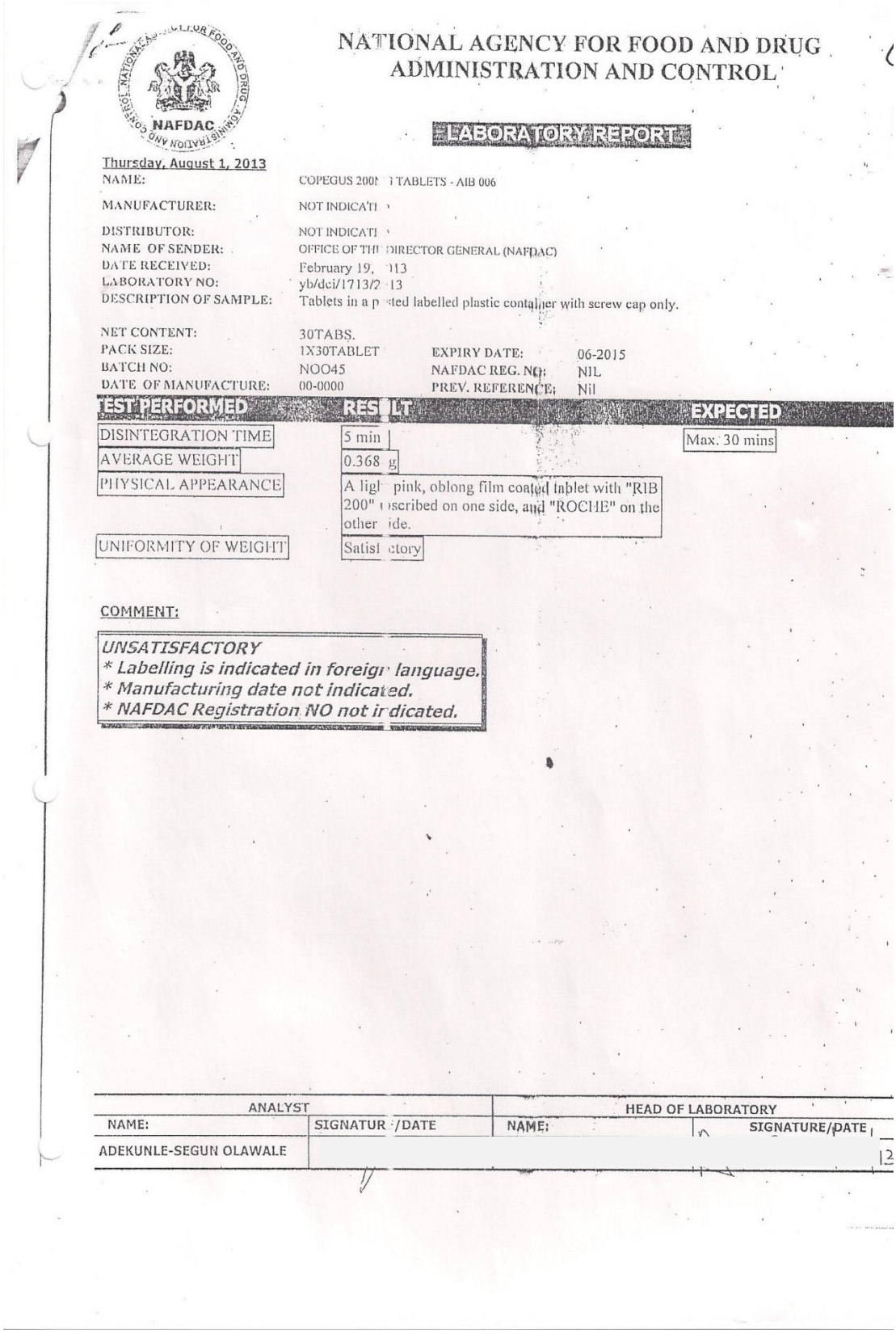
NAME:	FEXOFENADINE HYDROCHLORIDE TABLETS - AIB 003		
MANUFACTURER:	MYLAN PHARMACEUTICALS IND. MORGANTOWN		
DISTRIBUTOR:	NOT INDICATED		
NAME OF SENDER:	OFFICE OF THE DIRECTOR GENERAL (NAFDAC)		
DATE RECEIVED:	February 19, 2013		
LABORATORY NO:	yb/dci/1711/2013		
DESCRIPTION OF SAMPLE:	Tablets in a pasted labelled plastic container with screw cap only.		
NET CONTENT:	10TABS.		
PACK SIZE:	1X10TABS.	EXPIRY DATE:	11-2012
BATCH NO:	3021889	NAFDAC REG. NO:	NIL
DATE OF MANUFACTURE:	00-0000	PREV. REFERENCE:	Nil

TEST PERFORMED	RESULT	EXPECTED
DISINTEGRATION TIME	8 mins	Max. 30 mins
AVERAGE WEIGHT	0.6519g	
PHYSICAL APPEARANCE	Blue, oblong, film-coated tablet with "M755" engraved on one side and plain on the other.	
UNIFORMITY OF WEIGHT	Satisfactory	

COMMENT:

UNSATISFACTORY
** Date of manufacture not indicated.*
** NAFDAC Registration No not indicated.*

ANALYST		HEAD OF LABORATORY	
NAME:	SIGNATURE/DATE	NAME:	SIGNATURE/DATE
ADEKUNLE-SEGUN OLAWALE			



NATIONAL AGENCY FOR FOOD AND DRUG ADMINISTRATION AND CONTROL

NAFDAC

LABORATORY REPORT

Thursday, August 1, 2013

NAME:	COPEGUS 200[illegible] TABLETS - AIB 006
MANUFACTURER:	NOT INDICATI[illegible]
DISTRIBUTOR:	NOT INDICATI[illegible]
NAME OF SENDER:	OFFICE OF THI[illegible] DIRECTOR GENERAL (NAFDAC)
DATE RECEIVED:	February 19, [illegible]13
LABORATORY NO:	yb/dci/1713/2[illegible]13
DESCRIPTION OF SAMPLE:	Tablets in a p[illegible]sted labelled plastic container with screw cap only.
NET CONTENT:	30TABS.
PACK SIZE:	1X30TABLET
BATCH NO:	NOO45
DATE OF MANUFACTURE:	00-0000
EXPIRY DATE:	06-2015
NAFDAC REG. NO:	NIL
PREV. REFERENCE:	Nil

TEST PERFORMED	RESULT	EXPECTED
DISINTEGRATION TIME	5 min	Max. 30 mins
AVERAGE WEIGHT	0.368 g	
PHYSICAL APPEARANCE	A ligh[illegible] pink, oblong film coated tablet with "RIB 200" [illegible]scribed on one side, and "ROCHE" on the other [illegible]ide.	
UNIFORMITY OF WEIGHT	Satisf[illegible]ctory	

COMMENT:

UNSATISFACTORY
** Labelling is indicated in foreign language.*
** Manufacturing date not indicated.*
** NAFDAC Registration NO not indicated.*

ANALYST		HEAD OF LABORATORY	
NAME:	SIGNATUR[illegible]/DATE	NAME:	SIGNATURE/DATE
ADEKUNLE-SEGUN OLAWALE			

Following a directive from Head of Laboratory CDCL Yaba, on a letter from Accident Investigation Bureau (on the subject "Investigation into the accident involving Cessna aircraft registered 5NBMJ which occurred at Kona-Waya, Yola south L.G.A of Adamawa state on 25th October 2012) .

The bureau solicited the Agency's assistance in

i. Conducting tests and analysis on the drugs that were recovered from the cockpit area of the accident aircraft during site investigations.
ii. Determine the functions and analyze in details the effect of these drugs on human performance during flight operations.

The recovered drugs were

i. 4life transfer factor (MALEPRO. Food supplement)
ii. Loxagyl 400 (Metronidazole 400mg)
iii. Fexonadine Hydrochloride tablet, 180mg
iv. 4life transfer factor plus (Tri factor food supplement)
v. 4life transfer factor (Glucoach, dietary supplement)
vi. Copegus 200mg
vii. Barley Powder (Green supreme) with Chromium Picolate.

The following findings were made from literature review

a. TRANFER FACTOR – Is a peptide constituent of dialyzable leucocyte extracts prepared from the leucocytes of a sensitized donor that can passively transfer cell-mediated immunity to a non-sensitized patient.
Transfer Factor has been suggested for use in infection due to bacteria, fungi and viruses; inflammatory disorders, skin disorders e.g. eczema, Nervous System disorders, Immunodeficiency diseases and malignances.

They are recorded under supplementary drugs
Martindale 36th edition, pg 2403

i. 4life Transfer factor MALEPRO^{R} – Capsule contents mostly trace elements. Labeling not in English language.

ii. GLUCOACH^{R} (4life Transfer factor) – Label claim-supports the body's ability to effectively metabolize glucose which helps maintain healthy sugar levels.

Targeted Transfer Factor 200mg – A patented extract containing Targeted Transfer Factor from cow colostrums and egg yolk.

iii. 4Life transfer Factor Plus – label claim – immune support, Antioxidant, body glucose balance, brain support.

b. Metronidazole – has activity against anaerobic bacteria and protozoa. Used for protozoal infection such as amoebiasis, trichomoniasis e.t.c.
Interactions when given with alcohol, Metronidazole may provoke a disulfiram-like reaction in some patients. Acute psychoses or confusion have been associated with use of metronidazole and Disulfiram together
REF- Martindale 36th edition pg. 838

c. Fexofenadine-a non sedating antihistamine used for the symptomatic relief of seasonal allergic rhinitis
Adverse Effects: Syncope (faint) as exemplified by a 67 year old man who suffered syncope after taking fexofenadine 180mg daily for 2 months. His ECG showed an abnormally prolonged QT interval which shortened once he stopped taking fexofenadine. However manufacturers of fexofenadine have commented that the patient was at risk of developing arrhythmias before taking the drug.
Ref. Martindale 36th Edition, pg 579.
Potentially hazardous ventricular arrhythmias have occurred when non-sedating antihistamine (astemizole and terfenadine) have been given with drugs liable to interfere with their hepatic metabolism, with other

Appendix 4: Removal Of 5n-BMJ From Skypower Express' AOC & AMO

SKYPOWER EXPRESS AIRWAYS NIGERIA LIMITED

Murtala Mohammed Airport (MMA,)
Ikeja Lagos Nigeria

Tel: +234-803 374 0571
+234-805 801 5026
Fax: +234-62-243523
E-mail: skypowerexpress@yahoo.com
jojiab32@aol.com

October 22, 2012

NIGERIAN CIVIL AVIATION AUTHORITY
TRACKING OFFICE
22 OCT 2012
SIGN 2:40
RECEIVED

The Chairman,
Flight Standard Group,
Nigerian Civil Aviation Authority,
Murtala Muhammed Airport,
Ikeja, Lagos.

Dear Sir,

REMOVAL OF CESSNA CARAVAN FROM THE MANAGEMENT USE OF SKYPOWER AOC AND AMO

We write to inform you that the above mentioned aircraft with the following detail is removed from SKYPOWER AOC and AMO to the new owner; Taraba State Government.

AIRCRAFT TYPE:	**CESSNA CARAVAN**
SERIAL NUMBER:	**208B-2098**
REG NO:	**5N-BMJ**

All further enquiries pertaining to this aircraft should be forwarded to Taraba State Government.
A copy of this letter is sent to Taraba State Government.

Thank you for your usual cooperation.

Yours faithfully,
For: **SKYPOWER EXPRESS AIRWAYS**

SUMMARY OF COMMENTS TO DRAFT FINAL REPORT

The draft final report was submitted for comments to the Nigerian Civil Aviation Authority, Federal Airports Authority of Nigeria, National Transportation and Safety Board, Transportation Safety Board Canada, Ministry of Works and Transport, Taraba State Government, Nigerian Airspace Management Agency and Skypower Express Airways.

This is in compliance with sub-section 6.3 of Annex 13 to the ICAO Convention.

Nigerian Civil Aviation Authority made clarifications on several aspects of the Factual information, and well as editorial suggestions. The following points were highlighted:

a) As at the 22nd of October, 2012, the subject aircraft type was not amongst those listed on the Air Operator Certificate (AOC) Operations Specifications that was issued to Sky power Express Airways by the Authority.
b) As at 2012, the subject aircraft type was not amongst the ratings authorized by the Authority for Sky Power Express Airways in its Approved Maintenance Organisation (AMO) Operations Specifications.
c) The Authority is responsible for the final amendment/variation of an AOC/AMO Operations Specifications and not the operator as erroneously stated by Sky Power Express Airways in its letter, dated 22nd of October, 2012.