



AIRCRAFT ACCIDENT REPORT

REPORT ON THE ACCIDENT INVOLVING
GROUPE TRANSAIR B 1900 AIRCRAFT
REGISTRATION ZS-PHL WHICH OCCURRED
AT SÃO TOMÉ INTERNATIONAL AIRPORT
VICINITY ON 7th APRIL, 2013

NATIONAL ACCIDENT INVESTIGATION COMMISSION

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GLOSSARY OF ABBREVIATION USED IN THIS REPORT

ACC	Area Control Center
ACCID	Accident
ADR	<i>Accident Data Report</i>
AFI	<i>African - Ocean Indian (Aerospace)</i>
AIP	<i>Aeronautical Information Publication</i>
AOC	Air Operator Certificate
APP	Approach
ATOM BZV	Aircraft Take-off Mass Brazzaville
CB	Cloud Broken
CBs	Cumulonimbus Clouds
CNIPAIA	National Commission for Accident and Incident Investigation
CVR	<i>Cockpit Voice Recorder</i>
DME	Distance Measuring Equipment
DOC	<i>Document</i>
FAA	<i>Federal Aviation Administration</i>
FDR	<i>Flight Data Recorder</i>
FR	<i>Final Report</i>
GCA	<i>Ground Control Approach</i>
GPS	<i>Global Positioning System</i>
HF	<i>High Frequency</i>
ICAO	<i>International Civil Aviation Organization</i>
IDR	<i>Incident Data Report</i>
INAC	Instituto Nacional de Aviação Civil (National Civil Aviation Authority)
INCID	Incident

MTOM	<i>Maximum Take-Off Mass</i>
NTSB	<i>National Transportation Safety Board</i>
ONPOX	<i>Mandatory Report Point (153nm from FPST Airport)</i>
SR	<i>Safety Recommendation</i>
TCR	<i>Tower Communication Recorder</i>
TSN	<i>Time Since New</i>
TSO	<i>Time Since Overhaul</i>
TT	<i>Total Time</i>
USA	<i>United States of America</i>
UTC	<i>Universal Time Coordinated</i>
VHF	<i>Very High Frequency</i>
VOR	<i>VHF Omnidirectional Range</i>

AIRCRAFT ACCIDENT REPORT Nº: GT/07/04/2013/RF

TITLE: Accident.

REGISTERED OWNER AND ADDRESS: NIXOCOR CC, Postnet Suite 114, Private BAG X31,
Knysna 6570

NAME OF OPERATOR: GROUPE TRANSAIR.

MANUFACTURER: Beech Aircraft Corporation.

MODEL: B 1900 C.

REGISTRATION NUMBER: ZS – PHL.

PLACE OF ACCIDENT: São Tomé Airport vicinity (presumably)

DATE OF ACCIDENT: April 7, 2013.

TIME OF ACCIDENT: 16 hours and 13 minutes UTC.

All times in this report are referring to UTC

WEATHER CONDITIONS: CB clouds and thunderstorm activity around the station.

NUMBER OF CREW: 1+0.

EXPLANATORY NOTE

This report states the technical findings to the circumstances and causes of this accident, in accordance with ICAO Annex 13 to the Chicago Convention and the Law No. 1/ 2009, published in Diário da República(National Gazette) No. 3 of January 28.

This report does not seek to apportion blame or establish accountability, but it is only the determination of causes and making recommendations aimed at preventing its recurrence. The sole purpose of this technical report is to draw lessons which could prevent future accidents.

SYNOPSIS

National Commission for Accident and Incident Investigation (CNIPAIA) was notified of the occurrence on the 7th April 2013. Investigators were dispatched on the same day to carry out investigation on the occurrence and all stakeholders were notified accordingly.

Enroute from FYOA Ondangua Airport in Republic of Namibia to FPST São Tomé International Airport in the Democratic Republic of São Tomé and Príncipe the pilot was flying at FL 200

lower than planned FL 220; The last known position reported was ONPOX.

When initiating descent from FL 200 to 4000 feet the pilot was advised that weather was gradually deteriorating at airport vicinity.

At 1610hrs the pilot had last transmission with Control Tower informing about his position which was 4000 feet and 9 nm inbound to São Tomé VOR; He also informed that he was encountering heavy rain and asked the Controller on duty if it was also raining at the airport, and the ATC Controller responded that there was no rain at the airport and cleared the pilot for VOR approach for runway 29.

At 1613hrs, the aircraft lost contact with tower presumably due to a lightning that struck around the area at that time affecting the Control Tower power system; however the communications were never lost in the tower due to battery and generator backup that picked up immediately.

Having lost contact with the aircraft, the São Tomé ATC has tried several times to contact the airplane by VHF 118.9, 127.5 and 8903 without success. Facing this situation the CTA immediately sent messages to Flight Information Regions (FIRS) at Accra, Brazzaville and Libreville Control, requesting information about the aircraft; they reported no contact whatsoever. Angola Airlines and Namibian Airlines flying São Tome and adjacent airspaces were asked about any information on aircraft and they responded not having any information.

A Search and Rescue operation started on 07 April 2013. In the same day all radar capabilities have been used to their fullest capacity by São Tomé e Príncipe Authorities and the US government in the region, but have found nothing on the weather. The São Tomé Coast Guard began on Monday, April 8, the search and rescue operation utilizing boat and seasoned divers. An aircraft of a local aviation company has participated as well on the Search and Rescue Operation, flying throughout the island.

The Voice of America Station in São Tomé representing USA embassy gave support to the search and rescue operation;

No trace of aircraft debris, pilot or cargo was found and the search was terminated on 20 April 2013 at 1730 hrs.

Probable Causal Factors

- Fatigue and stress due to long flight on adverse weather conditions;
- Spatial disorientation and loss of control as the aircraft may have been struck by

lightning during approach.

- Medical certificate expired date: 31-10-2012

Probable Contributory Factors

- Poor flight preparation
- Adverse weather conditions enroute and on arrival
- Complete disruption of communication between the aircraft and the Control Tower

1.0 FACTUAL INFORMATION

1.1 History of the Flight

The aircraft was planned to fly from Lanseria airport (FALA) in Republic of South Africa to Bamako airport (GABS) in Mali with a stopover in Ondangua airport (FYOA) in Namibia, São Tomé International airport (FPST) in São Tomé and Príncipe and Accra airport (DGAA) in Ghana, with a rough estimating time of approximately 15hrs flying, not including the ground time at airports of stopover.

The aircraft had been in Lanseria airport (FALA) in Republic of South Africa (RSA) for maintenance check (including but not limited to engine work and interior refurbishing). Prior to the planned flight, the aircraft underwent flight check for 45 minutes after completed planned maintenance on Saturday, April 6th, flown by the Captain and another SAS company pilot.

The aircraft departed FALA to FYOA for its first stop over whose flight time was 03:35h.

The planned departure from FYOA was delayed due to trouble in starting the right engine. The aircraft took off at 1021hrs contrary to planned 0830hrs.

For the second leg of the flight, the aircraft departed FYOA to FPST with filed flight plan of 05 hours and 20 minutes (flight time) having FYOA as alternate.

Leaving the namibian airspace the pilot only contacted Luanda ATC and São Tomé Tower as destination, and at no time did he contact Brazzaville or Libreville for any further clearance within Brazzaville FIR:

It is important to emphasize that on that day, the west coast of Africa in the vicinity of Gulf of Guinea had widespread moderate to severe thunderstorm activity with lightning and heavy rain.

When initiating descent to São Tomé from FL 200 to 4000 feet as instructed by São Tomé ATC,

the pilot was advised that weather was gradually deteriorating at airport vicinity. At 1610hrs the pilot had last transmission with Control Tower informing them about his position which was 9 nm inbound to São Tomé VOR at 4000 feet and also informed the ATC that he was encountering heavy rain.

Having lost contact with aircraft at 1613hrs, the São Tomé ATC tried several times to contact the airplane by VHF118.9, 127.5, 121.5 and HF 8903 without success. Facing this situation the ATC sent messages to FIRs of Brazzaville and Accra and Libreville Control as well, some airlines flying within São Toméan an adjacent airspace were contacted for any information but all responses were negative.

A Search and Rescue operation started on 7 April 2013 the same day the accident occurred and was conducted on the sea and on the island; no trace of aircraft or its debris, pilot or any cargo were found. The search was terminated on 20 April at 1730hrs.

1.2 Injuries to Persons

Having been considered an accident, standing to date, the aircraft and pilot are reported missing.

1.3 Damage to Aircraft

Not known.

1.4 Other Damage

Not known.

1.5 Personnel Information

1.5.1 Pilot

Nationality: American.

Age: 54 years.

Gender: Male.

Licence: ATP (FAA Certificate)

Licence Validity: N/A

Medical Certificate /Validity: Class 1, 23/04/2012 to 31/10/2012(expired)

South Africa Licence Validation: Yes

Aircraft Ratings: B190

Total Flying Time: 10756.0 (at 24 April 2012)

Total on Type: No available information

1.6 Aircraft Information

1.6.1 General Information

Aircraft manufacturer: Beech Aircraft Corporation

Model: 1900C

Serial: UC-74

Year of manufacture: 1989

Registration marks: ZS-PHL

Seat: 2+17

Owner: NIXOCOR CC

Operator: Group Transair

Certificate of Registration: 188/ZS-PHL/5

Certificate of Airworthiness: 188/ZS-PHL/7; Expiry Date 27/05/2013

Certificate of Insurance: 1st December 2012/1st December 2013

Total Hours: 23,388.80

Total Cycles: 29,117

1.6.2 Engine

Manufacturer: Pratt & Whitney Canada

Model: PT6A-65B

Serial Number: PCE 32442 - TSO: 3182.10, CSO: 2569

PCE 97165 - TSO: 3361.80, CSO: 2684

1.6.3 Propeller

Manufacturer: Hartzell

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Model: HC-B4MP-3A

Serial Number: FWA 3066 - Total Time: 4081,8; TSO:1192,9 (28/1/2013)

FWA 3245 – Total Time: Not known; TSO: Not known

1.6.4 General Maintenance Records:

Aircraft had just completed maintenance at FALA, South Africa.

The following companies conducted the maintenance work:

- Vector Aerospace – engines
- Centurian Avionics - autopilot
- Lanseria Interior – paint and interior refurbishment
- JUPP Air – propellers

1.7 Meteorological Information

On that day, the west coast of Africa in the vicinity of Gulf of Guinea had widespread moderate to severe thunderstorm activity with lighting and heavy rain. When initiating descent to São Tomé, the pilot was advised that weather was gradually deteriorating at airport vicinity.

Meteorological conditions as obtained from National Meteorology Institute were as follows:

15:00 UTC

Wind: variable/02 KT

Visibility: +10kms

Present Weather: thunderstorms and rain

Clouds: few CBs 1700 feet broken 3,300 feet

Temperature: 25°C

Dew Point: 23°C

QNH: 1009

16:00 UTC

Wind: 180/06 KT

Visibility: +10 kms

Present Weather: thunderstorm

Clouds: CBs 1700 feet, broken 4,000feet

Temperature: 26°C

Dew Point: 24°C

QNH: 1009

17:00 UTC

Wind: 150/06 kts

Visibility: +10kms

Present Weather: thunderstorm

Clouds: CBs 1700 feet, broken 3300 feet

Temperature: 26°C

Dew Point: 24°C

QNH: 1010

1.8 Aids to Navigation

The conditions of the navigation aids at the São Tomé International Airport on the day of the occurrence were as follows:

- São Tomé Control and Approach (ACC & APP) VHF 127.5 MHz ;
- São Tomé Tower VHF 118.900 MHz;
- São Tomé Tower VHF 121.500 MHz (Emergency Frequency);
- VOR/DME 117.300 MHz;

São Tomé International Airport is a non-radar.

1.9 Communications

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

1.10 Aerodrome Information

The São Tomé International Airport with ICAO location indicator FPST has a runway designation of 11/29.

The surface is coated with asphalt and has a dimension, 2160m x 45m. The Aerodrome Reference Point is: N002° 2' 51" and E006° 42' 07" with an elevation of 10m.

1.11 Flight Recorders

At time of occurrence the São Tomé Tower VHF and HF recording system were out of service.

1.12 Wreckage and Impact Information

Not known

1.13 Medical and Pathological Information

Aircraft and Pilot missing

1.14 Fire

Aircraft missing

1.15 Survival Aspect

Aircraft and Pilot missing

1.16 Test and Research

Aircraft missing

1.17 Organizational and Management Information

1.17.1 The Operator

Name: Group Transair

Adress: 1, Route de Niger-Almadies, BP 30147 Dakkar-Sodida, Dakkar-Senegal.

Group Transair is a Regular and Non Regular Commercial Air Transportation of Passengers.

Has an Air Operator Certificate that is authorized to perform commercial air operation, in accordance with the operations manual and the Senegalese Aeronautical Regulations.

Areas of operations: Domestic, Africa.

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The aircraft was based in Bamako- Mali working for Sahel Aviation Services.

1.18 Additional Information

Pilot had one incident for which he was reprimanded during his career for transmitting prematurely that he had landed when in fact he had not.

There is information that Pilot cellphone apparently ringing in Angola after the occurrence.

No aircraft ELT signals had been received, including a searcher from Montreal, Canada.

1.19 Useful or Effective Investigation Techniques used

None

2 Analysis

2.1 Conduct of the flight

The aircraft was planned to fly from FALA to GABS with stop over on FYOA, FPST and DGAA. The first leg of the flight from FALA to FIOA went smoothly.

For the second leg of the flight, São Tomé Tower received on the 07/04/2013 at 07:48:59hrs the flight plan FYOA (Ondangua) / FPST (São Tomé) with filed flight duration of 0520hrs and having FYOA as alternate.

The aircraft departed from FYOA to FPST at 1021hrs contrary to planned 0830hrs likely due to right engine problem.

Leaving the Namibian airspace the pilot only contacted Luanda ATC and São Tomé Tower as destination, at no time contacted Brazzaville or Libreville for any further clearance within the Brazzaville FIR.

2.2 Meteorological Factors

It is pertinent to note that on that day, the west coast of Africa in the vicinity of Gulf of Guinea had widespread moderate to severe thunderstorm activity with lighting and heavy rain.

2.3 License issues

The pilot was holding FAA ATP Licence. The First Class FAA (USA) medical Certificate issued on April 23rd 2012 had expired on October 31st 2012. This is not in accordance with part 67 of the Federal Aviation Regulations, for this class of Medical Certificate.

A validation License was issued by the Civil Aviation Authority of the Republic

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of South Africa on April 16th 2013, 9 days after the occurrence, without signature and stamp of the issuing authority and unsigned by pilot as well. This is not in accordance with part 61 of South African Validation of Foreign License. It was an oversight of South African Civil Aviation Authorities.

3 Conclusions

3.1 Findings

Given the facts so far reported we conclude that:

- (1) Medical Certificate had expired five (5) months before the occurrence;
- (2) Licence Validation was issued nine (9) days after the occurrence;
- (3) Poor flight preparation:
 - (a) Having FYOA as alternate (the fuel on board should be insufficient to return to departure point);
 - (b) Not contacting Brazzaville FIR;
 - (c) Waypoint Araki was entered in error as Anak;
 - (d) Pilot likely suffering from fatigue;
 - (e) Delayed departure(1h51m) from FYOA due to trouble starting right engine;
 - (f) Flying into adverse weather conditions can be stressful;
 - (g) Planned long flight as solo pilot from FALA to GABS is excessive for pilot fatigue perspective (over 15 hours flying);
 - (h) Fuel endurance reported (2+30) to São Tomé tower at ONPOX appears inaccurate.
- (4) The aircraft might have crashed on sea due to storm around the island, although there is no evidence of a crash due to no show of any trace of aircraft debris, pilot or cargo even after the search and rescue operation.
- (5) If the aircraft had been at 4000 feet and 9 nautical miles from airport, with bad weather in the area and after complete disruption of communication between the aircraft and Control Tower, the pilot could have attempted to find another airport as alternate for landing or it may have crashed somewhere out of São- Tomean waters.
- (6) In case the aircraft did not crash, what could have happened? Was it hijacked?

3.2 Probable Causal Factors

By the fact that there is no evidence of the crash, the cause of the accident cannot be conclusively decided, however the investigation discovered series of discrepancies and non-compliance which includes:

a. Pilot:

- i. Planned long flight as solo pilot from Lanseria to Bamako is excessive for pilot fatigue perspective (over 15 hours flying).
- ii. The First Class FAA (USA) medical Certificate issued on April 23rd 2012 had expired on October 31st 2012.

b. Meteorological Conditions:

- i. Adverse weather conditions enroute and on arrival on that day, the west coast of Africa in the vicinity of Gulf of Guinea had widespread moderate to severe thunderstorm activity with lighting and heavy rain. When initiating descent to Sao Tome, the pilot was advised that weather was gradually deteriorating at airport vicinity.

4.0 Safety Recommendations

Taking into account, the **discrepancies and non-compliance**, CNIPAIA issues the following recommendations:

4.1 Safety Recommendation nº 01/2018

South African Civil Aviation Authority should intensify its surveillance and monitoring on all validation of foreign licence.

4.2 Safety Recommendation nº 02/2018

Group Transair as the operator should monitor the validity of medical certificate and validation of foreign licence of its pilots.

4.3 Safety Recommendation nº 03/2018

Group Transair should lay down procedures to improve flight operations including but not limited to crew rest in accordance with best practices;

4.4 Safety Recommendation nº 04/2018

Group Transair should ensure that before the commencement of any flight its pilots should have all necessary related information to reduce or mitigate risks associated with operations during the planned flight.

Comissão Nacional de Investigação
para Prevenção de Acidentes
e Incidentes de Aviação