

# **AIRCRAFT ACCIDENT**

## **FINAL REPORT**

**Southern Air Charter**

**Beechcraft 1900C**

**N79YV**

**Nassau New Providence Bahamas**

**22 October, 2004**

**Report A0514022**





# **AIRCRAFT ACCIDENT**

**REPORT No. A0514022**

**SOUTHERN AIR CHARTER LIMITED**

**BEECHCRAFT 1900 C  
N79YV**

**Nassau New Providence, Bahamas  
22 October, 2004**

**Flight Standards Inspectorate  
Bahamas Department of Civil Aviation**



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The Minister of Transportation

Madam

The attached report summarizes an investigation made into the circumstances of an accident involving Beechcraft BE-1900C aircraft N79YV on Nassau, New Providence Bahamas on 22 October 2004.

This report is submitted pursuant to Part XII, Regulation 80, and Schedule 19 of the Bahamas Aviation Safety Regulation (BASR 2001) and in accordance with Annex 13 to the Convention on International Civil Aviation (ICAO).

Delvin R. Major  
Aviation Safety Inspector  
Investigator in Charge  
Flight Standards Inspectorate  
Department of Civil Aviation (Bahamas)

January 31, 2005

**APPROVED FOR RELEASE AS A PUBLIC DOCUMENT**

*In accordance with Annex 13 to the Convention on International Civil Aviation (ICAO), and Schedule 19 of the Bahamas Aviation Safety Regulations (BASR April 17,2001) it is not the purpose of aircraft accident investigation to apportion blame or liability. The sole objective of the investigation and the Final Report is the prevention of accidents and incidents.*





# New Providence



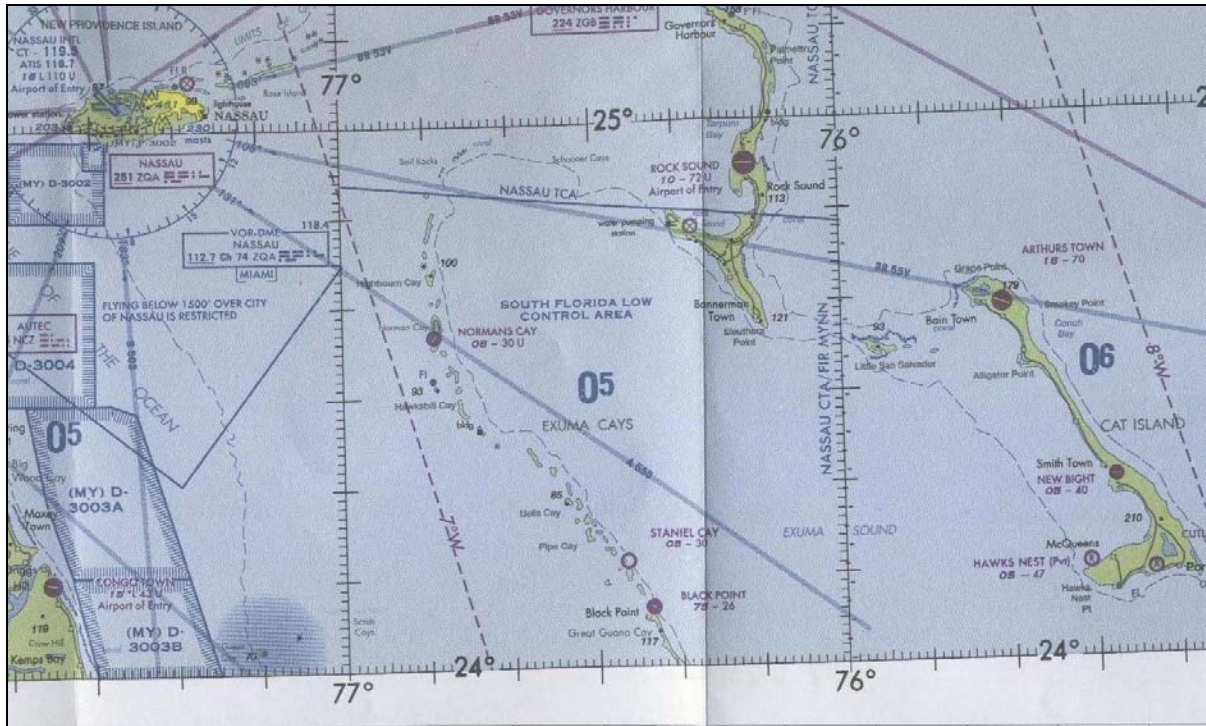
N79 YV  
 Beech 1900 C Model  
 Crashed in approx 4 ft of water  
 off the Southeastern shoreline of New Providence Island  
 October 22nd, 2004 13:45 (1845Z)

## Flight Standard Inspectorate

INVESTIGATOR: Delvin R. Major	LOCATION: 6.98 nm Southeast of Nassau Int'l Airport	Place: Nassau, N. P., Bahamas
AC Reg #: N79 YV	Weather Condition/MC	Co-ordinates: Unknown
DRAWN BY: Delvin R. Major	File Ref # A051422	DATE OF ACCIDENT: 10-22-04
		IC Signature:







## Section 1

## Abbreviations and Terminology used in this report.

BDCA	Bahamas Department of Civil Aviation
BASR	Bahamas Aviation Safety Regulations (April 17, 2001)
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CG	Center of Gravity
DCA	Director of Civil Aviation
CAD	Civil Aviation Department
EDT	Eastern Daylight Time (+5 hours to convert to UTC or Zulu time)
FAA	Federal Aviation Administration
FSI	Flight Standards Inspectorate
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Condition
NM or nm	Nautical Miles
NTSB	National Transportation Safety Board
USA	United States of America
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
Zulu or UTC	Universal Coordinated Time also termed Zulu time or Z
METAR	Weather Report furnished by Meteorological Department
ADDS	Aviation Digital Data Service - Report furnished by Meteorological Department





FLIGHT STANDARDS INSPECTORATE  
CIVIL AVIATION DEPARTMENT  
(Bahamas)

AIRCRAFT ACCIDENT  
REPORT No. 0514022

BEEHCRAFT BE1900 C  
N79YV  
22 October 2004

**1.1 BASIC INFORMATION**

**Operator:** Southern Air Charter Limited

**Manufacturer:** Raytheon Aircraft Company

**Place of Accident:** 6.98 nautical miles southeast of Nassau International Airport, 82 yards from the shoreline on the southeastern portion of New Providence Island, Bahamas.

**Investigating Authority:** Manager - Flight Standards Inspectorate

**Investigator in Charge:** Delvin R. Major – Aviation Safety Inspector – Investigator in Charge

**Notification:** State of Manufacturer / Design  
Federal Aviation Administration (FAA)  
National Transportation Safety Board (NTSB)  
International Civil Aviation Organization (ICAO) Mexico Office

**Party to Investigation:** **Thomas Roper - FAA**  
**Tim Monville – NTSB**  
**Norman Piasecki – Pratt & Whitney Canada**  
**Raytheon Aircraft Company**

**Releasing Authority:** Director - Bahamas Civil Aviation Department

**Date of Report:** January 31, 2005



## 1.2 SYNOPSIS:

The occurrence of this accident was notified to the Flight Standards Inspectorate by the Nassau Control Tower. On October 22, 2004 about 1328 eastern daylight time (1828Z) a Beechcraft 1900 C, N79YV registered to JODA LLC of Chesterfield Missouri, and operated by Southern Air Charter Limited of Nassau, Bahamas, was ditched. The accident occurred in approximately four (4) feet of water, approximately 82 yards off the southern shoreline of New Providence Island (6.98 nautical miles southeast of the Nassau International Airport).

The State of Manufacture of the airframe and engines (United States) was advised of the accident on that day and invited to participate in the investigation. The NTSB as well as the FAA were also notified and subsequently made party to the investigation, as the aircraft was a United States registered aircraft operating on an approved United States 129.14 maintenance program.

Visual Meteorological Conditions prevailed at the time and an outbound visual flight plan was on file. N79YV operated as a schedule air commuter on a domestic transport flight. The flight originated from Arthur's Town, Cat Island Bahamas enroute to Nassau International Airport, Nassau, Bahamas. The airplane sustained substantial damage. The occupants of the aircraft consisted of eight (8) passengers and a crew of two (2). The Pilot in Command held an Airline Transport Pilot rating and the First Officer held a Commercial Pilot rating. Both crews were certificated by the Federal Aviation Administration, (FAA). No serious injuries or fatalities were reported.

## FACTUAL INFORMATION:

### 1.3 History of the Flight

<b>Flight Number</b>	Not applicable
<b>Type of Operator</b>	Commuter (Scheduled on Demand)
<b>Type of Operation</b>	Commercial Air Transport
<b>Crew Briefing</b>	Unknown
<b>Flight Planning</b>	Unknown
<b>Departure Point</b>	Arthur's Town, Cat Island
<b>Destination</b>	Nassau, Bahamas
<b>Flight Path</b>	Arthur's Town, Cat Island direct to Nassau, Bahamas
<b>Radio Communications</b>	Nassau Approach Control and Nassau Tower Control
<b>ATC Report</b>	On file
<b>CVR Report</b>	Unavailable
<b>Witness Statement</b>	On file
<b>Location of Accident</b>	6.98nm southeast of Nassau Int'l Airport in approximately 4 feet of water, 82 yards from the shoreline.
<b>Time of occurrence</b>	1345 local (1845Z)
<b>Time of Day</b>	Afternoon

**1.4 Injuries to persons** No fatal or serious injuries to occupants were reported.

**1.5 Damage to aircraft** The aircraft was substantially damaged by the impact forces.



## 1.6 Personnel information

### Captain Elston Gaitor

Age	29 years old
Gender	Male
Type of License	Airline Transport License number 2558714
Validity of licenses	FAA Certified Airline Transport Pilot
Ratings	Beechcraft 1900
Flying experience	8,000 hours
Types flown	BE1900
Hours on type	112.5
Hours in last	
24 hours	1.9
7 days	1.9
90 days preceding accident	112.5
Results of recent training	Proficiency Check conducted satisfactorily 7/27/04.
Experience on route	3.0 hours
Aerodrome involved	Nassau International Airport
Duty time and rest period prior to accident	Pilot just returned from four day off duty.

### First Officer Joshua Knowles

Age	18 years old
Gender	Male
Type of License	Commercial Pilot License
Validity of licenses	FAA Certified Commercial Pilot license 2747721
Ratings	None
Flying experience	EST 568
Types flown	BE1900
Hours on type	178.7
Hours in last	
24 hours	0
7 days	3.2
90 days preceding accident	108.5
Results of recent training	Proficiency Check conducted satisfactorily 6/14/04.
Experience on route	2.0 hours
Aerodrome involved	Nassau International Airport
Duty time and rest period prior to accident	Pilot recently returned from four day off duty.



## 1.7 Aircraft information - General

<b>Manufacturer and model</b>	Beechcraft 1900 C
<b>Serial number</b>	UB-41
<b>Year of manufacture</b>	1985
<b>Nationality</b>	United States of America
<b>Registration marks</b>	N79YV
<b>Validity of C of R</b>	United States C of R dated 8 <sup>th</sup> January, 2004
<b>Name of Owner</b>	Joda LLC
<b>Name of Operator</b>	Southern Air Charter Limited
<b>Validity of C of A</b>	Current C of A issued September 25 <sup>th</sup> , 2000

## 1.8 Aircraft History

- Total hours flown since manufacture 26,397 airframe hobbs time
- Since overhaul 4,469hrs
- Since last periodic inspection 6.8 hours and 19 cycles
- Aircraft maintained under FAR 129.14 maintenance program

### Engines

- **Engine manufacture and model** Pratt and Whitney [PT6A-65B]
- Position on the aircraft **Left Engine**
- Serial numbers PC-E32176
- Overhaul periods Unknown
- Total hours since overhaul 4503.7
- Hours since last inspection 6.8

- **Engine manufacture and model** Pratt and Whitney [PT6A-65B]
- Position on the aircraft **Right Engine**
- Serial numbers PC-E32175
- Overhaul periods Unknown
- Total hours since overhaul 4503.4
- Hours since last inspection 6.8

### Props

- **Prop manufacture and model** Hartzell [Model HC-B4MP-3A]
- Position on the aircraft **Left Engine**
- Serial numbers FWA 3692
- Overhaul periods Unknown
- Total hours since overhaul 2,673.9
- Hours since last inspection 6.8

- **Prop manufacture and model** Hartzell [Model HC-B4MP-3A]
- Position on the aircraft **Right Engine**
- Serial numbers FWA 3181
- Overhaul periods Unknown
- Total hours since overhaul 109.9
- Hours since last inspection 6.8



## 1.9 FUEL

- **No fuel was found in left or right collector tanks**
  - The fuel in use was Jet A1 (Specific Gravity at 60 degree Fahrenheit was 0.8099)
  - Fuel slips show uplift of 531 gallons for the day (386 and 145 gallons)
- *Aircraft holds a total of 425 gallons. A total of 386 gallons uplifted on October 22, 2004.*

**On October 22, 2004 at 6:35 am**, a total of 386 gallons<sup>1</sup> of fuel was uplifted, which brought fuel total to 2800 pounds. A total of 3 flights were conducted lasting 29 minutes, 11 minutes and then 21 minutes (for a total of 61 minutes chock to chock time and a usage of 700 pounds of fuel) which brought fuel total down to 2100 pounds.

**On October 22, 2004 at 8:42am** a further 146 gallons<sup>2</sup> of fuel was uplifted. This additional 146 gallons brought fuel total back to 2800 pounds. No additional fuel slips were produced to show any further uplift of fuel. A total of 8 flights including the fateful flight were conducted with this 2800 pounds of fuel.

### Defects

- There were no open defects at the time of the accident

## 1.10 AIRCRAFT LOAD

### Maximum take off mass and landing mass

- Could not be determined as crew did not complete a mass and balance computation.

### Actual take off mass at time of occurrence

- Could not be determined as crew did not complete a mass and balance computation.

### CG at take off and at time of the occurrence

- Could not be determined as crew did not complete a mass and balance computation.

## 1.11 Wreckage and Impact information

The wreckage was initially examined at the crash site on October 22, 2004 by Flight Standards Inspectors Butler, Major and Romer. All major components of the aircraft were accounted for at the scene.

Examination of the wreckage area was carried out. The aircraft was aligned on a heading of 040 degree, approximately 6.98 nautical miles southeast of the Nassau International Airport in approximately 4 feet of water.

The initial impact was in water, approximately 4 feet at rising tide. The location was approximately 82 yards off the southeastern shoreline of New Providence Island. There was no post impact fire.

The aircraft came to rest upright. The underside of the wings, the propellers, the bottom of both engine nacelles and the bottom of the fuselage, bore the main impact of the collision. The fuselage remained intact. The cockpit and empennage were intact. The horizontal stabilizer and elevators had no visible impact or post impact damage. The vertical fin and rudder had no visible impact or post impact damage.

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<sup>1</sup> - Exhibit 1 Texaco fuel ticket # 83421 shows a total of 386 gallons.

<sup>2</sup> - Exhibit 2 Texaco fuel ticket # 83422 shows a total of 145 gallons.



Both wings were still attached to the fuselage. Damage was confined to the wing root area near the engine attachment point. Both ailerons were attached and received no impact or post impact damage. Both wing flaps were extended to the take off position as a result both wing flaps sustained structural damage.

Both engines were still intact in the nacelles. The propellers were extensively damaged from the impact. The right propeller was found to be in a feathered position. The left propeller was found to be in normal ground pitch.

The instrument panels were intact and submerged in water. Both windshields appeared to be normal. No life vests were found open within the aircraft. Both emergency exits on the right side were still closed. The left emergency exit was found in the open position and the door placed in the aisle, on the floor. All seats were intact and in their original position.

Both engines throttles, and mixture controls were found in the "Idle / Cut Off" range of travel. Both propeller controls were found in the feathered range of travel. Both fuel standby pump selector switches were found in the "ON" position.

On 28 October, 2004 the aircraft was taken out of water and put on dry land by Air and Sea Crash Recovery. A further inspection was conducted. At the time of the inspection no fuel was found in the left or the right fuel collector tanks. Approximately 1 pint of fuel was drained from the left engine motive flow line. No fuel was found in the right engine motive flow line.

The nose gear door was found open and the nose gear was partially hanging out of its enclosure. The gear selector switch in the cockpit was found in the "UP" position.

The captain holds an FAA Airline Transport Pilot License number 2558714 with single and multi engine privileges and Beech 1900 Type rating. The captain most recent first class medical was issued May 17, 2004. The date of the pilot's last proficiency check was July 27, 2004.

The first officer holds an FAA Commercial Pilot License number 2747721. The co-pilot most recent first class medical was issued April 20, 2004. The date of the co-pilot's last proficiency check was June 14, 2004

### **1.12 Meteorological information <sup>3</sup>**

Aviation Digital Data Service (ADDS)

METAR Report

Nassau 22 October 1800Z winds 340 degree at 11 knots scattered clouds at 2,000 feet temperature 29 degrees centigrade, dew point 21 degrees centigrade altimeter 1011 millibar.

Bahamas Area Forecast

Valid from 1800Z

Special Features. Weak front across northwest Bahamas drifting slowly south eastwards. Scattered to occasional broken clouds from 1,800 to 2,500 feet with tops 4,000 to 6,000 feet. Few scattered showers and isolated thunder showers with towering cumulus and cumulonimbus with tops above flight level 22,000 feet. Local IFR and moderate turbulence in vicinity of the showers and thundershowers.

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<sup>3</sup> information retrieved from Bahamas Area Forecast from the Bahamas Meteorology Department.





**1.13 Communications** Communications were established with the Nassau Air Traffic Radar Control and subsequently the Nassau Control Tower.

At 13:17:58 - Initial exchange of transmission occurred with the Nassau Approach Control on frequency 121.0. At this time the aircraft reported “We are experiencing ah, right engine problems, we’ll like to come straight in on, ah three two, ah mean two seven, anyone is quicker.

At 13:25:35 - Handover of services from the Approach Control to the Tower Control with the phrase from approach control “Okay roger ah, exercise caution ya gat men and equipment at the beginning of that runway.”

At 13:25:39 - Acknowledgement by aircraft with the phrase “seven nine” was made.

At 13:25:47 - Initial exchange of transmission was initiated by N79YV with the Tower Control on frequency 119.5 with the phrase “Tower, November seven nine yankee victor with you straight in two seven.”

At 13:28:53 - The last exchange of transmission occurred with the Nassau control tower on frequency 119.5 with the phrase from the aircraft, “going down.”

**1.14 Flight Recorder**

The aircraft was equipped with a Teledyne Controls Cockpit voice recorder serial number A01168 and part number 89090-003211 manufactured by B & D Instruments.

The 30 minute tape was found severely bound, damaged, stretched and broken. It was removed, cleaned and pressed, and ultimately found to contain no intelligible data.

**1.15 Tests and research<sup>4</sup>** a borescopic inspection was conducted on the left and right engine. There was no evidence of catastrophic failure on either of these engines. A full report available as an attachment.

**1.16 Organizational and management info**

- **Operator** Southern Air Charter
- **Maintenance Organization** Southern Air Charter
- **Certification and Licensing Authority** CAD / FAA
- **Regulatory Authority** CAD / FAA

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<sup>4</sup> information received from an inspection conducted by Mr. Norman P Paisecki Senior Field Support Representative, Pratt and Whitney Canada - engine manufacturers.



### **1.17 Operations culture**

1. Technical logs not being completed as required by regulations.
2. Mass and balance as required by regulations not being completed.
3. Operational Flight Plan not being completed as required by regulations.
4. Filing of flight plans as required by regulations not being complied with.
5. Check List found on aircraft was not an approved checklist.
6. Required documents not being left at place of departures.
7. Regulation requirements for fuel reserve not being complied with.

### **1.18 Pilot Statement**

Upon arrival at the scene an interview was conducted with the pilot, Captain Elston Gaitor.

Captain Gaitor made the following statement: -

- "The first leg of the flight from Nassau to Arthur's Town, Cat Island departed with the main tanks at 1100 pounds per side. The flight to Arthur's Town was normal and uneventful and lasted about 30 minutes. At Arthur's Town Cat Island five (5) passengers were deplaned and eight (8) boarded the flight to Nassau.

- The Flight departed enroute to Nassau at an altitude of 8,500 feet. About 28 to 29 miles out of Nassau, at 8,500 feet, the right engine gauges started to wind down from top to bottom (ITT, Torque, Oil Temperature and Pressure gauges). I lost about 60% of power, the engine didn't cut off completely, but rather stayed like that for about 3 to 5 minutes.

- After power loss I started to monitor everything, the oil and fuel light started to come on and right fuel pressure light came on. I turn on right standby fuel pump. I was not sure what caused it, but the gauges started to go down, but the engine didn't shut down.

- About 18 to 19 miles out, the right engine shut down completely. At that point I secured the engine. My altitude was about 5,500 feet at this time. I called Nassau Air Traffic Control and was cleared straight in to Runway 27. A few minutes after that, About 3,000 to 3,500 feet, close to the shoreline the left engine started the same thing. It started to wind down. I lost power on the left side about 30 to 40 % power on engine gauges.

- My airspeed was about 180 knots and my altitude was about 2,500 feet at this time and the airplane started to slowly come down. It wouldn't make sense to try continuing, so I decided to stay on the shoreline in case anyone got hurt. I focused on trying to get close to shore. After aircraft came to rest I opened front door and told everyone to come to the front. I told everyone to put on their life vest. I do not know what contributed to the accident."



## ANALYSIS:

### 2.1 General

#### Flight operations

- **Crew qualifications** - The crew's actions and statements indicated that their knowledge and understanding of the aircraft systems were inconsistent with the knowledge and understanding level required of a crew to safely and effectively operate the aircraft in question.
- **Weather** – Weather condition VMC not a factor to accident.
- **ATC** – Services provided was adequate.
- **Communications** – Two way communications was established.
- **Aids to Navigation** – No reported defects with Navigational Aids.
- **Aerodrome** – Aerodrome 6.98nm from scene.

### 2.2 Aircraft

- **Aircraft maintenance** - The aircraft was maintained in accordance with its FAA approved Part 129.14 maintenance program.
- **Aircraft Components** - Left propeller blade damage and twist was consistent with the engine producing power at impact.
- **Aircraft performance** – Aircraft performance not a factor.
- **Mass and balance** - a mass and balance was not conducted for this flight by the crew. However, a mass and balance reconstructed from information gathered showed that the aircraft mass and balance was within limits.
- **Aircraft Navigational Instrumentation** – instrumentation not a factor in the accident.
- **Aircraft Systems**  
**Engines** – tests were conducted on the engine system - a borescopic inspection was conducted. There was no evidence of catastrophic failure on either of these engines.

**Fuel Sample** – The fuel sample from the aircraft referenced met specification limits for the properties tested and should not have contributed to the accident<sup>5</sup>. Fuel sample was tested by Panair Laboratory Inc 4301 N. W. 72 Ave Miami Florida. From sample tested, the specific gravity for the fuel was 0.8099 @ 60 degree Fahrenheit.

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<sup>5</sup> Information furnished by Eric C. Johnson V. P., Panair Laboratory, Inc



- **Human factors** – There was no evidence that incapacitation or physiological factors affected the flight crew performance.
- **Psychological and physiological factors affecting personnel involved.** - There was no evidence that the crew suffered any sudden illness or incapacity, which might have affected their ability to control the aircraft.

### 2.3 Survivability

- **Rescue service response** - rescue response was timely and adequate.
- **Analysis of injuries and fatalities** – There were no serious or fatal injuries to passengers or crew. They were all transported to medical facility and discharged after examination.



### 3.0 FINDINGS:

#### 3.1 AIRCRAFT

- **Right Engine stopped from fuel exhaustion (no usable fuel on board).**
- The aircraft was maintained in accordance with an FAA approved Part 129.14 maintenance program.
- The aircraft had a valid Certificate of Airworthiness.
- The aircraft was airworthy when dispatched for the flight.
- There was no evidence of airframe failure or flight control system malfunction prior to the accident.
- All control surfaces were accounted for, and all damage to the aircraft was attributable to the severe impact forces.
- Fuel was tested for possible contamination. Results of test showed no possible contamination and should not have contributed to aircraft malfunction.

#### 3.2 CREW

- The crew's actions and statements indicated that their knowledge and understanding of the aircraft systems were inconsistent with the knowledge and understanding level required of a crew to safely and effectively operate the aircraft in question.
- The flight crew was properly licensed and qualified for the flight in accordance with Federal Aviation Administration Regulations.
- The flight crew was medically fit, and adequately rested and in compliance with the flight and duty time regulations.

#### 3.3 FLIGHT OPERATIONS

- **The flight was not conducted in accordance with the procedures in the company Operations Manual.**
- The flight crew carried out normal radio communications with the relevant ATC unit.
- The pilot made an early decision to divert towards a suitable landing area while attempting to determine the extent of the emergency.
- Evidence exists of tankering of fuel with out an approved procedure.
- No mass and balance was completed for the flight outbound.
- No mass and balance was completed for the flight inbound.
- No Technical and Journey Log entry was made for the flight outbound.
- No Technical and Journey Log entry was made for the flight inbound.

#### 3.4 AIR TRAFFIC SERVICES

- The approach radar controllers were properly licensed, and correctly rated to provide the service.
- ATC provided prompt and effective assistance to the flight crew.
- All aerodrome approach aids and lighting facilities were operating normally at the time of the accident.



- As radar controllers could not recall the altitude at the time of the report of engine trouble, the lack of this data significantly impaired the reconstruction of the aircraft's descent profiles.

### 3.5 FLIGHT RECORDERS

The aircraft was equipped with a Teledyne Controls Cockpit voice recorder serial number A01168 and part number 89090-003211 manufactured by B & D Instruments.

The 30 minute tape was found severely bound, damaged, stretched and broken. It was removed, cleaned and pressed, and ultimately found to contain no intelligible data.

The lack of a CVR recording covering the period of the incident prevented some details of the events being resolved.

### 3.6 MEDICAL

- **There was no evidence that the pilot suffered any sudden illness or incapacity, which might have affected his ability to control the aircraft.**
- There was no evidence that incapacitation or physiological factors affected the flight crew performance.

**( information gathered from interview with pilot)**

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#### **4.0 SAFETY RECOMMENDATIONS:**

The extent of the investigation into Southern Air Charter's past practices and procedures warrants the following recommendations.

- 1. Heightened surveillance on Southern Air Charter.**
- 2. Recommendation to the FAA to review crew for fitness to hold current licenses.**
- 3. Require Company Policy on crew pairing (low time captain, with high time first officer or vice versa) is addressed and amended as required.**
4. As per regulation 77, Enforcement action be initiated against Southern Air Charter as well as its crew for failure to comply with mass and balance requirements of Schedule 17.035 (a)(b)(c)
5. Enforcement action is initiated against Southern Air Charter as well as its crew for failure to comply with minimum fuel requirements as per BASR 2001 Schedule 10.415 and 10.420(a).
6. Enforcement action is initiated against Southern Air Charter as well as its crew for failure to comply with Schedule 10.238(b) and 10.240 responsibilities for completion of required documents.
7. Require Company ceases practice of tankering of fuel pending an approved procedure.
8. Require Company establishes an auditing program to address the deficiencies identified during the accident investigation.
9. Require Company conduct audit to oversee fuel uplift and documentation.
10. Require Company conduct audit to address issues relative to documentation that need to be carried on board and left at point of departures.
11. Require Company conduct audit to address issues relative to personnel not completing mass and balance, technical records and other documentation that must be carried on board as per BASR 2001.
12. Require Company conduct Basic indoctrination on all crew again to insure all personnel are aware of their duties as per BASR 2001 and Company policies.
13. Require Company establishes or amends Policy on new hire pilots.
14. Require Company establishes or amends Policy on credit for previous training.



15. Require Initial Operating Experience on aircraft is increased for new PIC.
16. Require Initial Operating Experience on route for new hire PIC and upgrades be increased.
17. Require company amend policy that addresses the minimum time required to qualify as PIC.
18. Require Company amends policy that addresses the minimum time required to upgrade to PIC.
19. Require Company amends policy that addresses the minimum Experience required to qualify as PIC on type.

### **APPENDICES**

Communication transcript  
Technical investigation report  
Pertinent maintenance records  
Maps and diagrams  
Photographs

