



AIRCRAFT ACCIDENT REPORT FINAL REPORT

**Propulsion System Malfunction +
Inappropriate Crew Response**

**GOLDEN WINGS CHARTER
PILATUS BRITTEN
NORMAN ISLANDER BN2A-26
N133RS
S/N 606**

**Nassau, N.P., Bahamas
August 13, 2007**

FSI# A0723896



Flight Standards Inspectorate Bahamas Department of Civil Aviation

TABLE OF CONTENTS

Note to Minister	4
Investigation Participants	5
Crash Scene Diagram	6
Sample Photos	7
Title	8

SYNOPSIS

• Abbreviations and Terminology	9
• Definitions.....	10
• Overview	11

BODY

FACTUAL INFORMATION	11
1.1 HISTORY OF THE FLIGHT	11
1.2 INJURIES TO PERSONS	11
1.3 DAMAGE TO AIRCRAFT.....	11
1.4 OTHER DAMAGE.....	11
1.5 PERSONNEL INFORMATION	
1.5.1 Captain	12
1.6 AIRCRAFT INFORMATION	
1.6.1 Airworthiness and Maintenance.....	12
1.6.2 Performance	13
1.6.3 Fuel	13
1.7 METEOROLOGICAL INFORMATION.....	13
1.8 AIDS TO NAVIGATION.....	13
1.9 COMMUNICATIONS	13
1.10 AERODROME INFORMATION	13
1.11 FLIGHT RECORDERS.....	13



1.12	WRECKAGE AND IMPACT INFORMATION	13
1.13	MEDICAL AND PATHOLOGICAL INFORMATION.....	14
1.14	FIRE.....	14
1.15	SURVIVAL ASPECTS	14
1.16	TESTS AND RESEARCH.....	14
1.17	ADDITIONAL INFORMATION.....	14

ANALYSIS

2.1	GENERAL.....	15
2.2	AIRCRAFT	15
	• Aircraft Performance	
	• Mass and Balance	
	• Aircraft Navigational Instrumentation	
	• Aircraft Systems	
	• Human Factors.....	16
	• Psychological and physiological.....	16

CONCLUSIONS

3.1	Findings.....	17
3.2	Probable Cause.....	17
3.3	Contributing Factors.....	17

SAFETY RECOMMENDATIONS.....

APPENDICES.....

A-01	Captain written statement.....	19
------	--------------------------------	----



June 30, 2007

Hon. Neko Grant
Minister of Tourism and Aviation
Bolam House
George St.
P.O. Box N-3701
Nassau, N.P.,
Bahamas

Sir

The attached report summarizes the investigation into the circumstances of the accident involving Pilatus Britten Norman Islander BN2A-26 aircraft United States Registration N133RS, registered to FYP LTP and operated by Golden Wings Charter. This accident occurred approximately a ½ mile NW of Lynden Pindling International Airport, Nassau, Bahamas on 27 June, 2007.

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

In accordance with Annex 13 to the Convention on International Civil Aviation (ICAO), and Schedule 19 of the Bahamas Civil Aviation (Safety) Regulations (CASR April 17, 2001), the fundamental purpose of such investigations is to determine the circumstances and causes of these events, with a view to the preservation of life and the avoidance of similar occurrences in the future. It is not the purpose of such investigations to apportion blame or liability.

This information is published to inform the aviation industry and the public of the circumstances surrounding this accident. The contents of this Report may be subjected to alterations or corrections if additional information becomes available.

Dion Q. Demeritte
Investigator in Charge
Flight Standards Inspectorate
Department of Civil Aviation (Bahamas)



Participants in the Investigation

Dion Demeritte	Flight Standards Inspectorate	IIC
Patrick Rolle	Flight Standards Inspectorate	Operations
Hubert Adderley	Flight Standards Inspectorate	Airworthiness
Delvin Major	Flight Standards Inspectorate	Operations
Funmilayo Carroll	Flight Standards Inspectorate	Assistant
Juliea Brathwaite	Flight Standards Inspectorate	Assistant
Cameron Roach	Golden Wings Charter	Director of Operations
Dion Darling	Golden Wings Charter	Director of Maintenance
Granlin Edwards	Golden Wings Charter	Maintenance

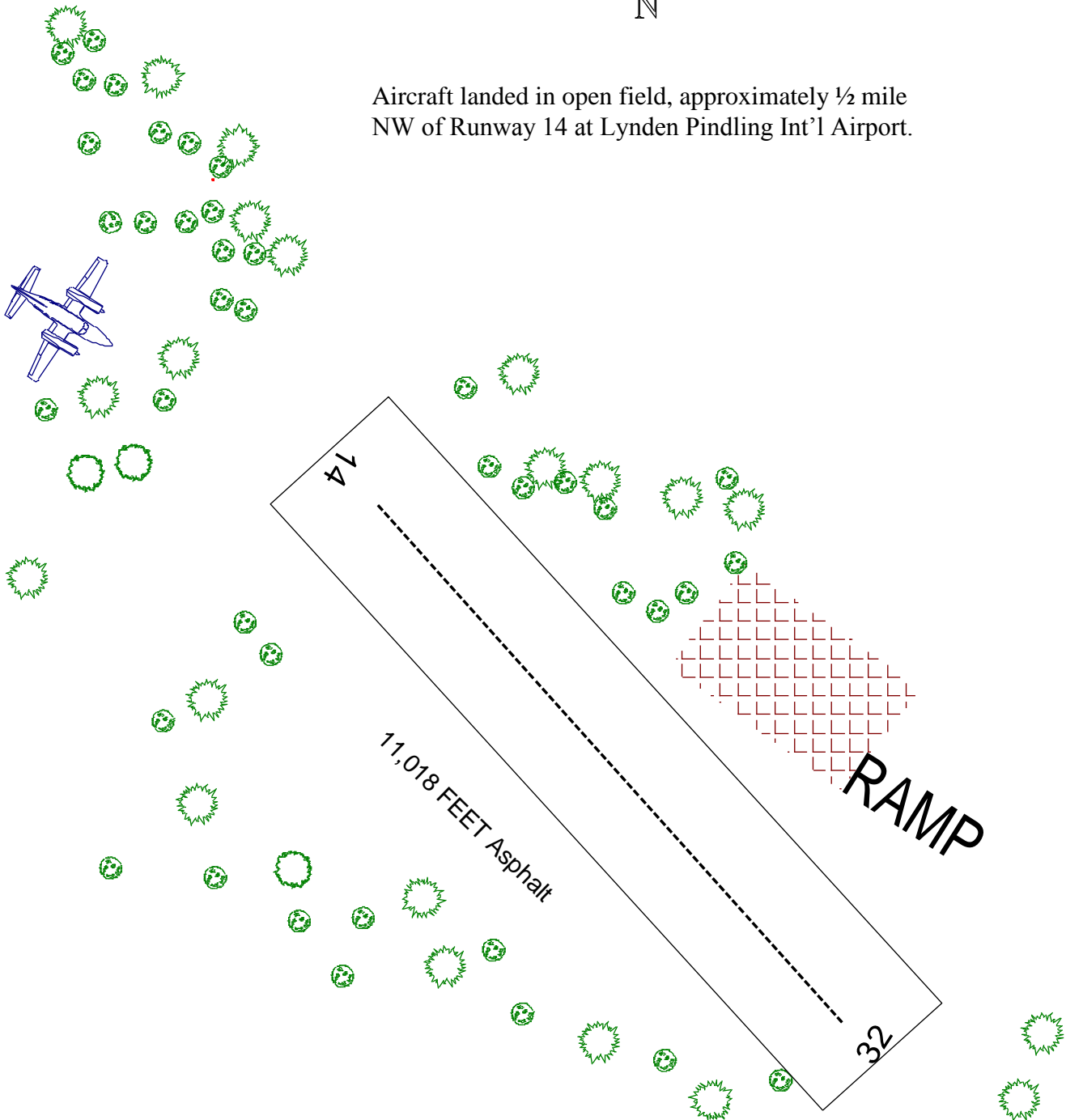


CRASH SCENE DIAGRAM

CASE NUMBER: A0723896



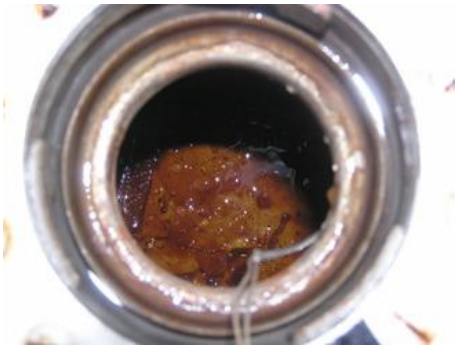
Aircraft landed in open field, approximately 1/2 mile NW of Runway 14 at Lynden Pindling Int'l Airport.



FLIGHT STANDARDS INSPECTORATE

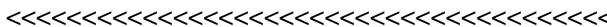
INVESTIGATOR: DELVIN R. MAJOR	LOCATION: OFF FIELD 1/2 MILE NW OF LP INT'L AIRPORT	COUNTRY: BAHAMAS
WEATHER: VMC	RUNWAY COND.: ASPHALT	DATE OF OCCURENCE: JUNE 27, 2007
DRAWN BY: DELVIN R. MAJOR	OCCURENCE: ACCIDENT	TIME OF INCIDENT: 2118Z - 5:18 EDT
	DATE DRAWN: AUG 1, 2007	SCALE: NOT DRAWN TO SCALE





Left Wing Fuel Tank

**Approximately 1 US gallon of unusable fuel
drained from tank post accident
28th June 2007**



Right Wing Fuel Tank

**Approximately 13 US gallons drained
from tank post accident
28th June 2007
3.5 US gallons Unusable**



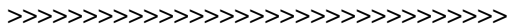
Left Fuel Quantity Indicator

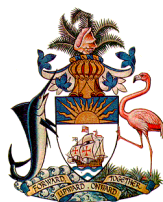
**With power selected "ON"
Gauge reads "0"**



Right Fuel Quantity Indicator

**With power selected "ON"
Gauge reads "10" US gallons**





FLIGHT STANDARDS INSPECTORATE
BAHAMAS CIVIL AVIATION DEPARTMENT

AIRCRAFT ACCIDENT
REPORT No. A0723896

Pilatus Britten Norman Islander
N133RS
27th June, 2007

SYNOPSIS

Operator: Golden Wings Charter

Manufacturer: Pilatus Britten Norman

Place of Accident: Approximately ½ mile NW of Runway 14, Lynden Pindling International Airport, Nassau, Bahamas. Co-ordinates N 25° 03.429' W 77° 28.969'

Investigating Authority: Flight Standards Inspectorate

Investigator in Charge: Dion Q. Demeritte – Investigator in Charge

Notification: National Transport Safety Board
Federal Aviation Administration

Party to Investigation: Federal Aviation Administration
Golden Wings Charter

Releasing Authority: Director - Bahamas Civil Aviation Department

Date of Report: August 13, 2007



ABBREVIATIONS, TERMINOLOGY

ADDS	Aviation Digital Data Service - Report furnished by Meteorological Department
AIS	Automatic Information Services
ATS	Air Traffic Services
BDCA	Bahamas Department of Civil Aviation
CASR	Bahamas Civil Aviation (Safety) Regulations (April 17, 2001)
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CG	Center of Gravity
CVR	Cockpit Voice Recorder
DCA	Director of Civil Aviation
DFDR	Digital Flight Data Recorder
DOO	Director of Operations
DRTL	Disaster Response Team Leader
DS	Director of Safety
CAD	Civil Aviation Department
EDT	Eastern Daylight Time (-5 hours (-4DT) to convert from UTC)
ERM	Emergency Response Manual
FAA	Federal Aviation Administration
FSI	Flight Standards Inspectorate
FSS	Flight Service Station
ICAO	International Civil Aviation Organization
ILS	Instrument Landing System
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Condition
LH MLG	Left Hand Main Landing Gear
MALSF	Medium-intensity Approach Lighting System (with sequenced flashers)
MD	Manager of Dispatch
MCM	Maintenance Control Manual
MET	Meteorological Office / Department
METAR	Weather Report furnished by Meteorological Department
MIRL	Medium Intensity Runway Lights
MYEH	ICAO Airport Designation – Governors Harbour
NDB	Non-directional Beacon
NM or nm	Nautical Miles
NTSB	National Transportation Safety Board
PAPI	Precision Approach Path Indicator
RCA	Root Cause Analysis
SEP	Survival and Emergency Procedures Training
T/L	Technical Log
TSBC	Transportation Safety Board of Canada
USA	United States of America
VFR	Visual Flight Rules
VOR	(Very High Frequency) Omni-directional Range Station
VMC	Visual Meteorological Conditions
UTC	Universal Coordinated Time
Z	Zulu time



DEFINITIONS

When the following terms are used in this report, they have the following meanings as per CASR 2001;

“Aircraft Accident”– means an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage or the aircraft is missing or completely inaccessible.

"Fatal injury" - means any injury which results in death within 30 days of the accident.

“Flight recorder” - Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

"Incident" - means an occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.

“Investigation”- A process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and, when appropriate, the making of safety recommendations.

“Serious injury” - means any injury which:

- Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received;
- Results in a fracture of any bone (except simple fractures of fingers, toes, or nose);
- Causes severe hemorrhages, nerve, muscle, or tendon damage;
- Involves any internal organ; or
- Involves second or third degree burns, or any burns affecting more than 5 percent of the body surface.
- Involves verified exposure to infectious substances or injurious radiation.

“Serious incident” - An incident involving circumstances indicating that an accident nearly occurred.

“State of Design” - The State having jurisdiction over the organization responsible for the type design

“State of Manufacture” - The State having jurisdiction over the organization responsible for the final assembly of the aircraft.

"Substantial damage" - means damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent failings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered "substantial damage" for the purpose of this Report.



OVERVIEW

The Flight Standards Inspectorate was notified by the Air Traffic Control Tower that N133RS, a Pilatus Britten Norman Islander had gone down on short final approximately ½ mile short of runway 14.

On June 27, 2007 about 1721 eastern daylight time (2121Z) a Pilatus Britten Norman Islander, N133RS registered to and owned by FYP LTP, and operated by Golden Wings Charter, Windsor Field, Nassau, Bahamas, had crashed short of runway 14. Just prior to crashing, approximately 1718 eastern daylight time (2118Z), the pilot of aircraft N133RS reported the left engine had failed. At approximately 1721 eastern daylight time (2121Z), the pilot reported he was unable to make runway 14 and crashed approximately ½ mile short of Runway 14.

The State of Manufacture and State of Design along with the State of Registry were notified of the accident on June 28, 2007. They were invited to participate in the investigation in accordance with Annex 13 and CASR 2001 Schedule 18.

Visual Meteorological Conditions prevailed at the time of the accident. The flight originated from Lynden Pindling International Airport, Nassau [MYNN] to Little Whale Cay, Berry Island [MYBX] and returned to Nassau [MYNN], the incident leg.

The airplane sustained substantial damage. The Pilot was the only person aboard the aircraft. The Pilot in Command holds a current United States Commercial Pilot Rating.

No serious injuries or fatalities were reported.

FACTUAL INFORMATION:

1.1 HISTORY OF THE FLIGHT

This was the first flight conducted by N133RS on the 27th June 2007. The flight originated from Lynden Pindling International Airport direct to Little Whale Cay, Berry Island and return to Lynden Pindling International Airport, Nassau, Bahamas.

The accident was located approximately ½ mile NW of Runway 14 at Lynden Pindling International Airport, Nassau, Bahamas at co-ordinates - N25° 03.429' and W77° 28.969'. The accident occurred during daylight time at approximately 17:21 local or 21:21Z.

1.2 INJURIES TO PERSONS

No fatal or serious injury occurred to the pilot, who was the only occupant aboard the aircraft.

1.3 DAMAGE TO AIRCRAFT

The aircraft was substantially damaged. (See photo gallery)

1.4 OTHER DAMAGE

There was no other damage noted.



1.5 PERSONNEL INFORMATION

1.5.1 Captain Leron Burrows

At the time of the accident, the aircraft was under the command of Captain Leron Burrows. Captain Burrows, age 24, holds United States Commercial Pilot License number 2653709. Captain Burrows also holds a First Class Medical, with no limitations. The medical was issued on March 21, 2007.

Captain Burrow's flight and duty times for the preceding 90 days, 7 days and 24 hours prior to the accident were 39.4 flight hours and 318 duty hours, 2.7 flight hours and 47.5 duty hours and 0 flight time and 0 duty hours respectively.

Captain Burrows most recent training is as follows;

1. Last Proficiency Check completed satisfactorily on April 28, 2007.
2. Last Line Check completed satisfactorily on May 11, 2007.

1.6 AIRCRAFT INFORMATION – GENERAL

1.6.1 AIRWORTHINESS AND MAINTENANCE

Pilatus Britten Norman Islander (BN2A-26), serial number 606 was manufactured in July 1970 by Pilatus Britten Norman. It is registered in the United States and bears the registration number N133RS.

Aircraft N133RS held a current valid Certificate of Airworthiness at the time of the accident.

Aircraft History

N133RS was manufactured by Pilatus Britten Norman as a BN2A and was later modified to a BN2A-6 (Mod NB/M/389), BN2A-8 (Mod NB/M/430) then finally BN2A-26 (Mod NB/M/631). This aircraft was originally registered in India as Registration VT-DYZ, then Canada as C-GJFT prior to being registered as N133RS in the United States. N133RS has flown a total of 9,010.8 hours since manufacture. Since the last 50-hour inspection, the aircraft has flown 22.8 hours. Since last Annual Inspection it has flown 32.8 hours. N133RS was maintained under Golden Wings Charter Pilatus Britten Norman Islander Progressive Maintenance Program. This program is based upon the Manufacturer's (Pilatus Britten Norman) Progressive Maintenance Program.

Engines

Both engines fitted to N133RS are Textron Lycoming model number 0-540-E4C5. The recommended overhaul period for this model (0-540-E4C5) is 2,000 hours.

Left engine serial number L-22917-40A time since overhaul is 467.0 hours.

Right engine serial number L16383-40 time since overhaul is 508.0 hours.



Propellers

Both propellers on N133RS were manufactured by Hartzell. The propellers were model number HC-C2YK-2CUF. The recommended overhaul period for this model (HC-C2YK-2CUF) is 2,000 hours.

The No. 1 Propeller, serial number AU9708B, in-service time since overhaul is 737.7 hours and time since last inspection [50 hours] is 22.8 hours.

The No. 2 Propeller, serial number AU9865B, in-service time since overhaul is 1,888.8 hours and time since last inspection [50 hours] is 22.8 hours.

1.6.2 PERFORMANCE

The performance of the aircraft was not a factor in the accident.

1.6.3 FUEL

The first flight of the day on June 27, 2007, the pilot recorded 314 pounds as the total fuel on board the Aircraft. Prior to this entry, on June 25, 2007, 60 pounds of fuel was uplifted.

1.7 METEOROLOGICAL INFORMATION

The weather forecast for the Northwest Bahamas indicated significant weather, with possible moderate to severe turbulence in the vicinity of the airport (MYNN).

The flight occurred during daylight. The accident occurred at approximately 2121 UTC (1721 local). The official sunset on June 27, 2007, was 1823 local time.

1.8 AIDS TO NAVIGATION

Aids for navigation were not a factor in this accident.

1.9 COMMUNICATIONS

The pilot was in communication with the control tower at Lynden Pindling International Airport (MYNN), until the time of the crash.

1.10 AERODROME INFORMATION

Information not included as landing was made off airfield

1.11 FLIGHT RECORDERS

No flight recorder was installed on this aircraft. None is required as per regulations.

1.12 WRECKAGE AND IMPACT INFORMATION

The accident aircraft was examined at the crash site on June 27, 2007, by Flight Standards Inspectorate. All major components of the aircraft were accounted for at the scene. Examination of the wreckage area was carried out. The airplane traversed below high voltage power cables and came to rest approximately 200 yards past the cables in an open field. The initial impact was



located approximately 100 yards from the final resting place approximately ½ mile short of runway 14.

The nose landing gear strut separated and lodged itself in the upper skin of the nose. The nose wheel assembly sustained substantial damage which resulted in parts of the hub departing the assembly along the impact path. Both main landing gears remained intact. The wings, propellers and engines sustained no visual damage. The fuselage remained 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. The cockpit and empennage were intact. However, the empennage sustained substantial damage due to the impact with the ground.

The instrument panels were intact. Both windshields were undamaged. All seats remained intact and secured in the seat tracks, in their original position. Both engine throttle levers were found in the IDLE position, propellers levers found in the FEATHER position and mixture levers in the CUT-OFF Position.

1.13 MEDICAL AND PATHOLOGICAL INFORMATION

Not a factor in this investigation

1.14 FIRE

There was no airborne or post impact fire.

1.15 SURVIVAL ASPECTS

No a factor in the investigation.

1.16 TESTS AND RESEARCH

No tests or research was conducted.

1.17 ADDITIONAL INFORMATION

Pilot's Statement.



ANALYSIS:

2.1 GENERAL

- **Crew qualifications** – Pilot qualified in accordance with Bahamas Civil Aviation (Safety) Regulations 2001 and Federal Aviation Administration. Pilot had accomplished Proficiency Checks and Line Checks as required by regulations. Pilot held appropriate flight and medical certificates. Pilot rest period, flight and duty times were within limitations specified in Golden Wings Charter's General Operations Manuals and Operations Specifications.
- **Weather** – Visual Meteorological Conditions existed at the time but was not a factor in this accident.
- **ATC** – Air Traffic Control was available at the Lynden Pindling International Airport but was not a factor.
- **Aids to Navigation** – Aids to navigation was not a factor in the accident.

2.2 AIRCRAFT

The Pilatus Britten Norman Islander is a high wing, twin piston-engine, propeller-driven, airplane. It is carbureted, normally aspirated, air-cooled with a fixed tricycle landing gear configuration. The accident airplane, serial number 606 was manufactured in 1970. It bore United States aircraft registration number N133RS. The aircraft was registered to FYP LTP and operated by Golden Wings Charter. This Aircraft was maintained in accordance with Golden Wings Charter Approved Pilatus Britten Norman Islander Progressive Maintenance Program. This program is based upon the Manufacturer's (Pilatus Britten Norman) Progressive Maintenance Program.

The United States Certificate of Registration was issued June 19, 2006, to FYP LTP, 3511 Silverside Road Suite 105, Wilmington, Delaware.

The airplane was properly certificated, and there was no evidence that airplane maintenance was a factor in the accident.

- **Aircraft performance** – Aircraft performance was not a factor in this accident.
- **Mass and balance** – The aircraft was last weighed on September 2004.
- **Aircraft Navigational Instrumentation** – instrumentation was not a factor in the accident.
- **Aircraft Systems**
 - **Fuel Quantity Indicator**
 - a. Pilatus Britten Norman Flight Manual Revision 10, dated March 19, 1987 states; each tank's total fuel capacity is 65 US gallons whilst 3.5 gallons of this in each tank is unusable fuel.
 - b. Pilatus Britten Norman Flight Manual Revision 10, dated March 19, 1987, states, "Unusable fuel in Pre-Mod NB/M/240 aeroplanes is 9.0 U.S. gallons in each tank. In



Post Mod NB/M/240 aeroplanes the quantity of unusable fuel totals 42Lbs (19 kg). When equipped with wing-tip tanks, 2 US gallons in each wing tip. *See Attachment*

- c. Golden Wings Charter and the Flight Standards Inspectorate removed approximately 1US gallon of fuel from the left tank of aircraft N133RS on June 28, 2007. *See photograph in photo gallery*
- d. Golden Wings Charter and the Flight Standards Inspectorate removed approximately 13 US gallons of fuel from the right tank of aircraft N133RS on June 28, 2007.

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



CONCLUSIONS

3.1 Findings

1. Aircraft accident happened as a direct result of unfamiliarity with the systems of the aircraft (particularly the fuel cross-feed and engine system).
2. Post accident investigation of N133RS, Approximately 1 US gallon of fuel was drained from the left tank and 13 US gallons from right tank (3.5 gallon of this 13 gallons is deemed unusable by the manufacturer).
3. Post accident - Both fuel selectors were set at the respective tanks.
4. The pilot stated, "Yeah there is a slight problem with the left indicator it would show slightly less than the right, but that was only on the ground, once it became air borne it would level off." The pilot further stated, "I checked the fuel by the gages". He also stated that he never made a technical log entry or reported the matter to Golden Wings management.
5. The pilot used a fuel quantity indicator, which he stated was faulty, as a primary means of determining the amount of fuel on board the aircraft.
6. Left engine failure due to fuel exhaustion.
7. The Pilot never "topped off" fuel tanks, and never visually checked fuel tanks (quantities).

3.2 Probable Cause

The Flight Standards Inspectorate determined that the probable cause of this accident was Propulsion System Malfunction due to fuel exhaustion of the left engine, followed by inappropriate crew response (fuel mismanagement).

3.3 Contributing Factors

- **Pilot's unfamiliarity with aircraft fuel system.**
- **Pilot's limited command experience. (He was a new hire, low time pilot)**
- **Pilot's failure to conduct a proper preflight inspection of his aircraft. (did not visually check fuel tanks despite knowing that the gauges were faulty)**
- **Pilot's complacency with documentation of defects. (Pilot never advised maintenance or management that the gauges were faulty)**
- **Pilot's reliance on indications that he admitted were erroneous.**
- **Pilot's lack of situational awareness.**
- **Pilot's failure to recognize that his problem was fuel exhaustion and not engine failure and neglected to use cross-feed procedure.**



4.0 SAFETY RECOMMENDATIONS:

Recommend that Golden Wings Charter ensure that all new hires are thoroughly trained and understand the systems of aircrafts under their command.

Recommend that all pilots that are employed by AOC Holders undergo full training sessions at least annually, which demonstrate complete engine shut down and restart in flight.

Recommend that this training becomes a required part of the curriculum for all AOC holder new hires and recurrent proficiency checks.

5.0 APPENDICES

A-1 Pilot Statement

NOTE: The complete list of appendices above have not been included with this report. They are however, available should the appropriate authority for the administration of justice, determines that their disclosure outweighs the adverse domestic and international impact such action may have on that or any future investigation.

