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**AIRCRAFT ACCIDENT REPORT # GAAIU:3/1/6**

**BN2A-26 Islander – Registration – 8R-GHE**

**Missing Aircraft on flight between Mahdia Airstrip and Karisparu Airstrip  
Region No. 8 Guyana, on 28<sup>th</sup> December 2014.**

**This report represents the conclusions reached by the Guyana Aircraft Accident Investigation Team into the circumstances surrounding the aircraft accident, involving Guyana registered BN2A-26 Islander aircraft – 8R-GHE, which was owned by Air Services Ltd.**

**This investigation was done in accordance with Annex 13 to the Convention on International Civil Aviation. The investigation is intended neither to apportion blame, nor to assess individual or collective liability. Its sole objective is to draw lessons from the occurrence which may help to prevent future accidents.**

**Consequently, the use of this report for any purpose other than for the prevention of future accidents could lead to erroneous conclusions.**

*Unless otherwise specified, all times in this report is Coordinated Universal Time (UTC) which is four hours ahead of Guyana Standard Time (GST).*



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## **ABBREVIATIONS AND GLOSSARY**

<b>AMO</b>	-	<b>Approved Maintenance Organisation</b>
<b>ANS</b>	-	<b>Air Navigation Services</b>
<b>AOC</b>	-	<b>Aircraft Operator Certificate</b>
<b>ATC</b>	-	<b>Air Traffic Control</b>
<b>ATS</b>	-	<b>Air Traffic Services</b>
<b>ASL</b>	-	<b>Air Services Ltd.</b>
<b>CJIA</b>	-	<b>Cheddi Jagan International Airport</b>
<b>ELT</b>	-	<b>Emergency Locator Transmitter</b>
<b>FIC</b>	-	<b>Flight Information Center</b>
<b>FOM</b>	-	<b>Flight Operations Manual</b>
<b>GCAA</b>	-	<b>Guyana Civil Aviation Authority</b>
<b>GCARS</b>	-	<b>Guyana Civil Aviation Regulations</b>
<b>GDF</b>	-	<b>Guyana Defence Force</b>
<b>GPF</b>	-	<b>Guyana Police Force</b>
<b>CDC</b>	-	<b>Civil Defence Commission (Guyana)</b>
<b>MS</b>	-	<b>Maintenance Schedule</b>
<b>OSC</b>	-	<b>On-scene Coordinator</b>
<b>PIC</b>	-	<b>Pilot in Command</b>
<b>SAR</b>	-	<b>Search and Rescue</b>
<b>SMC</b>	-	<b>SAR Mission Coordinator</b>
<b>SYGO</b>	-	<b>Ogle International Airport</b>
<b>TBO</b>	-	<b>Time Before Overhaul</b>
<b>TSO</b>	-	<b>Time since overhaul</b>
<b>USMCC</b>	-	<b>United States Mission Control Center</b>
<b>VFR –</b>		<b>Visual Flight Rules</b>



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## **SYNOPSIS**

On 28<sup>th</sup> December 2014, the BN2A-26 Islander aircraft, registration – 8R-GHE departed Mahdia Airstrip at 15:42hrs on a flight that was expected to arrive at Karisparu Airstrip at 16:00hrs. There were two persons on board the aircraft, the pilot and a third crew member/loader. The aircraft disappeared during this flight.



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## 1. FACTUAL INFORMATION

### 1.1. History of the Flight

The aircraft left its base, Ogle International Airport, for Mahdia Airstrip, location, 5 16 37.76N 059 09 05.58W at 12:38hrs and was programmed to do a series of shuttles to various airstrips in the Region 8 area of Guyana. The aircraft departed from Mahdia on its eighth shuttle, at 15:42hrs, with the intention of landing at Karisparu Airstrip, location 4 55 03.96N 059 27 06.68W. The estimated time of arrival at Karisparu was 16:00hrs. The aircraft never arrived at Karisparu. At the time of departure, the aircraft had two persons on board and a variety of cargo including a small engine and 85 zinc sheets.

### 1.2. Injuries to Persons

**Table: 1**

<b>Injury</b>	<b>Crew</b>	<b>Passengers</b>	<b>Others</b>	<b>Total</b>
<b>Fatal</b>	1	1	0	<b>2</b>
<b>Serious</b>	0	0	0	<b>0</b>
<b>Minor/None</b>	0	0	0	<b>0</b>
<b>Total</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>

The aircraft is missing. The fate of the two occupants of the aircraft is unknown, presumed dead.

### 1.3. Damage to Aircraft

Unknown

### 1.4. Other Damage

Unknown

### 1.5. Personnel Information

Pilot Licence

Guyana Commercial Pilot Licence #269



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Aircraft Ratings	Single Engine Land; Multi Engine Land
Type Ratings	BN2 Islander, Cessna 172, Cessna 206
Date of Birth/Age	20 <sup>th</sup> December 1987/27 years
Type of Medical	1 <sup>st</sup> Class
Medical Expiry Date	31 <sup>st</sup> December 2014.
Total Flying Hours	+8,000hrs
Hours on Type	Unknown
Duty in Last 7 days	11:00hrs
Duty in last 24 hours	0hrs
Hours on Duty prior to landing	6hrs
Last APC/IPC	3 <sup>rd</sup> August 2014
Aircraft Type Refresher Check	21 <sup>st</sup> October 2014

The pilot had completed a medical examination to renew his licence on 8<sup>th</sup> December 2014. There were no medical limitations on his licence.

## 1.6 Aircraft Information

### 1.6.1. General information

Manufacturer:	Pilatus Britten-Norman Ltd.
Type:	BN2A-26 Islander
Aircraft Serial Number:	269
Year of manufacture:	1971
Number and type of engines:	2 Lycoming O-540-E4C5 piston engines
Total airframe hours:	25,818:7hrs at Date: 26/12/2014
Certificate of Registration:	Certificate#255, issued 24 <sup>th</sup> October 1995
Certificate of Airworthiness:	Transport (Passenger) Category valid until 4 February 2015.
Last Major Inspection:	1000hrs dated 27 <sup>th</sup> November 2014
Last Minor Inspection:	100hrs – completed 24 <sup>th</sup> December 2014 with airframe time – 25809:36hrs.



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### 1.6.2. Maintenance

Aircraft maintenance is done by the company in accordance with its Guyana Approved Maintenance Organisation (AMO) Certificate #001. The full-term renewal of the aircraft's Certificate of Airworthiness was done in February 2014. There were no known outstanding defects to the aircraft.

#### 1.6.2.1. Aircraft Engines

The starboard engine was Lycoming O-540-E4C5, S/N RL-11194-40E. This was a rebuilt engine installed with 0hrs on 3<sup>rd</sup> November 2013. The last 100hrs inspection was carried out on 24<sup>th</sup> December 2014. On 27<sup>th</sup> December 2014, it had acquired 1196hrs since installation. Records indicate that all required inspections were carried out in time.

The aircraft port engine was Lycoming O-540-E4C5, S/N L-1561-40C which was last overhauled on 17<sup>th</sup> November 2012. It was installed in the port position on 9<sup>th</sup> December 2014 with run time of 89:00hrs. A 50hrs inspection was carried out on 10<sup>th</sup> December 2014 and a 100hrs inspection was done on 24<sup>th</sup> December 2014. On 27<sup>th</sup> December 2014, this engine recorded a total time since overhaul of 153:23hrs.

### 1.6.3. Mass and Balance

The aircraft was reweighed on 1<sup>st</sup> October 2013. The maximum takeoff weight is 6600lbs. The aircraft was dispatched with one third-crew/loader and cargo weighing a total of 1,722lbs. The total aircraft takeoff weight was 6,340lbs. The aircraft was not overloaded on takeoff.

### 1.6.4. Crew and Passenger Entry/Exits.

The crew exit is located on the left of the cockpit near to the pilot seat. There are two exits in the passenger section of the cabin. One door is located on the right side, near the first row of passenger seats, the other door located on the left side near the rear row of passenger seats.

### 1.6.5. Emergency Locator Transmitter (ELT)

Aircraft records indicate that the aircraft was equipped with an ELT that transmits on 121.5MHz and 406.025MHz simultaneously. No emergency signal was received from the aircraft.





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The aircraft was equipped with a Spot Tracker that is timed to provide location signals at ten-minute intervals. A hit was received at 15:44hrs and the next hit was due at 15:54hrs but this was never received.

#### 1.7. Meteorological Information

This accident occurred in daylight. There is no observation or recording station in the vicinity of either the departure or intended arrival aerodromes.

The weather report from both the departure and arrival aerodromes, indicated – ceiling and visibility unlimited (CAVU). However, a witness reported that the en-route weather was marginal.

#### 1.8. Aids to Navigation

There are no aids to navigation in the area.

#### 1.9. Communications

The frequencies available for communications between Air Traffic Services and the aircraft are; 124.2MHz, 130.125MHz, 8855KHz and 6730.5KHz. However, there was no communication between the aircraft and Air Traffic Services at the time.

There was no communication between the aircraft and its company.

#### 1.10. Aerodrome Information

Not Applicable

#### 1.11. Flight Recorders

The aircraft is not required to be equipped with flight recorders.

#### 1.12. Wreckage Information

Unknown.

##### 1.12.1. Wreckage site

Unknown



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#### 1.12.2. Damage to Aircraft

Unknown

#### 1.13. Medical and Pathological Information

Not applicable

#### 1.14. Fire

Unknown

#### 1.15. Survival Aspects

The aircraft was reported missing. No information is available with regard to survivability of the aircraft and its occupants.

#### 1.16. Tests and Research

No tests or research were carried out.

#### 1.17. The Organization

##### 1.17.1. General

Air Services Ltd is a commercial aircraft operator that holds Guyana Air Operator Certificate # 003. It is primarily a domestic charter operator, with operations from its base at the Ogle International Airport. International operations are conducted as requested. The company operates a variety of aircraft including BN2A Islanders, Cessna Single Engine Variants, Turbo Thrush Commanders and helicopters. Technical management positions are held by persons who are suitably qualified and experienced.

The company also holds Guyana Approved Maintenance Organization Certificate #001. The AMO has the required management, supervisory and line staff to effectively carry out the tasks it undertakes and utilizes the AMEL system as the basis for maintenance certification. The maintenance facility is co-located with aircraft operations at Ogle International Airport and includes hangar space, offices, and several specialized workshops. Base and line maintenance are done on airframes, engines, avionics, instruments and propellers for aircraft below 5700kg. The company is approved to carry



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out these tasks on the various aircraft types they own. Contract maintenance services are also provided to other aircraft operators.

#### 1.17.2. ASL Flight Operations Manual

The company's Flight Operations Manual (FOM) has been approved by the GCAA. The manual covers company administration, crew requirements; operating procedures, dangerous goods, aircraft instruments and equipment, security and training.

The flight crew component is sufficient for the aircraft operations and can facilitate the flight and duty times limitations as detailed in the FOM.

It is required that the aircraft be equipped with serviceable HF communications for flights within Guyana that are outside the range of VHF communications. Aircraft must also be equipped with an ELT and a suitably sized and equipped Jungle Survival Kit.

The FOM does not contain any guidance to its staff with regard to handling overdue or missing aircraft.

##### 1.17.2.1. Responsibilities of the Pilot-in-Command

As extracted from the company FOM, the pilot in command reports to the Chief Pilot/Operations Manager and is responsible for the operations and safety of the aircraft and its occupants during flight. He has the final authority with regard to the disposition of the aircraft while he is in command. Before the beginning of a flight he is expected to thoroughly familiarize himself with the planned route; destination and alternate aerodromes; reported and forecast meteorological conditions. Among other things, he is expected to satisfy himself that the flight can be safely conducted; that all instruments and equipment, including emergency equipment for the flight is installed; that complete information regarding search and rescue services along the route to be flown are available; that the aircraft is airworthy and that maintenance documents are current. He also has the responsibility to ensure that all loads are properly distributed and safely secured and that a load sheet specific to the aircraft has been correctly filled out for each flight. He is also required to sign this and other relevant documentation to signify his acceptance of responsibility for the flight.



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#### 1.17.2.2. The Operations Supervisor

The Operations Supervisor reports to the Operations Superintendent. Among other things, he is responsible for maintaining the flight watch chart up to date and is required to know where all aircraft are located, their estimated time en-route and estimated time of arrival at destination. He is responsible for notification of personnel according to the alarm notification list in case of an emergency or accident. He is required to seek weather reports from at least two credible sources before dispatching flights and is also responsible for keeping continuous watch on weather situations generally and shall advise captains of the situation and shall advise them of desirable alternates

#### 1.17.3. Handling of Accidents and Occurrences

The FOM requires the company to notify the GCAA immediately, in event of an aircraft accident.

### 1.18. Other Information

#### 1.18.1. The Authority

The certifying authority for Air Services Ltd. is the Guyana Civil Aviation Authority (GCAA). The Authority does not have a resident Flight Operations Inspector and therefore is not staffed to carry out the required flight operations oversight responsibilities required for ASL. The Authority has an arrangement with the Caribbean Aviation Safety and Security Oversight System (CASSOS), which provides the services of Flight Operations Inspectors to Guyana quarterly, or upon request as necessary.

The Authority's staffing and facilities for maintenance oversight is satisfactory.

#### 1.18.2. Search and Rescue Operations

##### 1.18.2.1. General

The GCAA is the Search and Rescue (SAR) authority in Guyana. SAR operates on a 24 hours basis and is carried out by the Rescue Coordination Center (RCC) which is located at the Timehri Control Tower Complex at the Cheddi Jagan International Airport (CJIA). Upon determination that an aircraft and its occupants are in an emergency and requires help, the Duty Air Traffic Controller in the Flight Information Center (FIC) immediately activates the RCC and initiates SAR operations until relief is provided by a senior officer of the GCAA, who will assume the role SAR Mission Coordinator (SMC) until the Director



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General of GCAA designates a SMC. Other agencies that comprise the SAR organization includes the Guyana Defence Force (GDF), local aircraft operators, Guyana Police Force (GPF), the Guyana Fire Service (GFS) and the Ministry of Health, who are all expected to contribute their resources to the operation.

Depending on the location of the emergency it may be necessary to establish an SAR sub-base. This necessitates appointment of an On-Scene-Coordinator (OSC), who is responsible for coordination and operational control, including flight safety issues, on scene and coordinates all activities with the SMC.

When it is confirmed that the aircraft and its occupants are in distress, the RCC will go straight into the Distress Phase and take actions in keeping with this phase to expedite relief to the victims.

#### *1.18.2.2. SAR Activities*

The first report about the possibility of the aircraft being in distress was received by the FIC at 16:20hrs. The Duty Air Traffic Controller launched the Alert Phase and made several enquiries about the possible location of the aircraft. He also notified senior GCAA officials about the missing aircraft. At 19:40hrs the RCC was set up. Initially, five aircraft conducted reconnaissance over an area, identified as the most probable track that the aircraft would have flown. Subsequently, three helicopters, another aircraft and eleven (11) GDF Special Forces Officers were deployed on that day.

The RCC gathered information on the aircraft and started the coordination between the GDF, GPF, GCAA, Georgetown Public Hospital Corporation, ASL, Civil Defense Commission (CDC) and the Ministry of Public Works.

Checks were made with the USMCC for possible ELT hits. None were reported.

During the following twenty-one days period, over two hundred and thirty (230) hours were flown by three helicopters and eight fixed winged aircraft, including a Canadian Twin Otter Aircraft, over an area of twenty miles radius and for a width of five miles on either side of the Mahdia/Karisparu route. This was complemented by ground searches by seven ground search parties, totaling forty-seven (47) persons from the Guyana Forestry Commission, St. Cuthbert's Mission, villagers from Mahdia and Chenapau,



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twenty (20) Special Forces Officers, family members of the pilot and other volunteers. These ground teams searched in very treacherous and densely forested terrain, without success. Thus, a decision was taken to suspend the mission until credible information is received.



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## 2. ANALYSIS

### 2.1. The Pilot

The pilot's current Class 1 Medical was due to expire on 31<sup>st</sup> December 2014. In keeping with requirements, he had completed a medical examination on 8<sup>th</sup> December 2014, to renew his licence. There were no limitations on his Medical Certificate. His last refresher type check was done 21<sup>st</sup> October 2014. He was suitably qualified and experienced to conduct the flight.

### 2.2. The Aircraft

The aircraft had a valid Certificate of Airworthiness. Records indicate that the aircraft was properly maintained and airworthy at the time of the accident. Maintenance was being done by AMO #1 in accordance with approved Maintenance Schedule # MS/ASL/BN/001 Rev.3. There were no outstanding defects on the aircraft or its components.

### 2.3. The Weather

Although records indicate that the weather at both the departure and destination aerodromes were CAVU. The typical weather in the area at this time of year is usually unstable and the reported marginal en-route weather is not unusual.

### 2.4. The Company

The company is properly staffed and equipped to carry out the operational and maintenance tasks which it undertakes.

The company's FOM, while comprehensively covering the operations carried out by the operator, does not give its staff adequate instructions about handling emergencies generally.

### 2.5. Search and Rescue Activities

The GCAA launched an intensive search and rescue coordination effort that commenced with the activation of the Rescue Coordination Center (RCC), three hours and twenty minutes after the aircraft was reported missing. The search and rescue effort/activities lasted for twenty-one days and included aerial and ground searches in mountainous and densely forested terrain over a large area in Region Eight, but it failed to unearth the



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whereabouts of the aircraft or its occupants. This resulted in the SAR Mission being suspended and the aircraft and its occupants were declared missing.





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## 3. CONCLUSION

### 3.1 Cause

The probable cause of this accident is unknown.

### 3.2 Findings

#### 3.2.1. The Pilot

1. The pilot's licence was valid.
2. The pilot was qualified and experienced to carry out the intended operation.
3. His current medical is valid until 31<sup>st</sup> December 2014. He had completed a medical examination for renewal of his licence on 8<sup>th</sup> December 2014 and was reported as medically fit for renewal of his licence.
4. His last APC on type was satisfactorily completed on 3rd August 2014.

#### 3.3.2. The Company

1. The company holds an Air Operator Certificate and an Approved Maintenance Organisation Certificate.
2. The company is suitably staffed and equipped for its operations.
3. The company should develop procedures to handle missing and/or overdue aircraft. These procedures should be included in the company's FOM and staff should be thoroughly briefed on execution of these procedures.

#### 3.3.3. The Aircraft

1. The aircraft had a valid Certificate of Airworthiness and was maintained in compliance with regulations.
2. Records indicate that there were no outstanding maintenance or MEL issues with the aircraft.

#### 3.3.4. The Weather

It could not be determined if the weather may have contributed to the disappearance of this aircraft.



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#### 4.RECOMMENDATIONS

1. The GCAA should acquire flight operations staff to provide the necessary oversight to the operator.
2. The operator should improve its FOM by providing more guidance to its staff in relation to handling overdue and/or missing aircraft.