FINAL REPORT

AIC 14-1001

PAPUA NEW GUINEA

ACCIDENT INVESTIGATION COMMISSION

SHORT SUMMARY REPORT

Sunbird Aviation Limited
P2-SBC
Pilatus Britten Norman
BN2T Islander
Kikori Aerodrome, Gulf Province
PAPUA NEW GUINEA
23 April 2014

About the AIC

The Accident Investigation Commission (AIC) is an independent statutory agency within Papua New Guinea (PNG). The AIC is governed by a Commission and is entirely separate from the judiciary, transport regulators, policy makers and service providers. The AIC's function is to improve safety and public confidence in the aviation mode of transport through excellence in: independent investigation of aviation accidents and other safety occurrences within the aviation system; safety data recording and analysis; and fostering safety awareness, knowledge and action.

The AIC is responsible for investigating accidents and other transport safety matters involving civil aviation, in PNG, as well as participating in overseas investigations involving PNG registered aircraft. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The AIC performs its functions in accordance with the provisions of the PNG Civil Aviation Act 2000 (As Amended), Civil Aviation Rules 2004 (as amended), and the Commissions of Inquiry Act 1951 (as amended), and in accordance with Annex 13 to the Convention on International Civil Aviation.

The object of a safety investigation is to identify and reduce safety-related risk. AIC investigations determine and communicate the safety factors related to the transport safety matter being investigated.

Readers are advised that in accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of an AIC 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. (Reference: ICAO Annex 13, Chapter 3, paragraph 3.1.)

However, it is recognised that an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the AIC endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why it happened, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation.

The AIC was informed of the BN2T Islander landing accident by the operator, Sunbird Aviation Limited, on Wednesday 23 April 2014. Initially, based on reported information, an on-site investigation was not considered to be warranted and an office investigation was commenced by the AIC. However, after numerous interviews and analysis of evidence, it became apparent that an on-site investigation would be necessary. The on-site investigation commenced on Thursday 8 May 2014.

The AIC has produced a short summary report for greater industry awareness of potential safety issues and possible safety actions.

Runway excursion – landing, involving Britten Norman Islander (Turbine) BN2T, P2-SBC

Occurrence details

On the morning of the 23rd April 2014 (local date), the pilot of a BN2T aircraft, P2-SBC (SBC), owned and operated by Sunbird Aviation Limited, submitted a VFR[1] flight plan by telephone to Jackson's International Aerodrome Briefing Office for Kikori from Port Moresby with an ETD[1] of 2130[2]. He flight planned to track 298° magnetic from Port Moresby to waypoint Emperor then to Kikori (see Fig. 1).

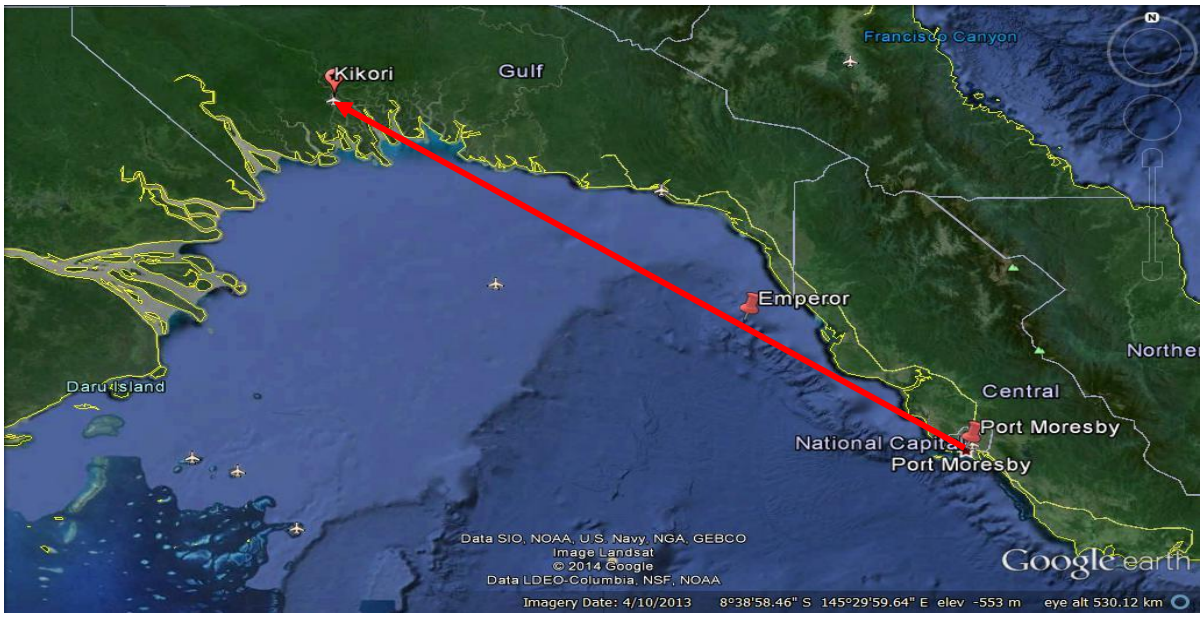


Figure 1: **Map showing flight route**

The departure was delayed due to the late arrival of fuel drums which were part of the cargo. A total 627 kg of cargo, which included two drums of Jet A-1 fuel, was eventually loaded.

The pilot, the sole occupant, taxied at Port Moresby at 2300. The aircraft departed Port Moresby at 2306 (90 minutes after the planned ETD) and climbed to 10,000 feet, and the pilot reported to air traffic control that he estimated Kikori at 0041. The pilot cancelled SARWATCH[3] in the circuit area at Kikori at 0040. He informed the Accident Investigation Commission (AIC) that he joined the circuit upwind (see Fig. 3) for a left downwind and, after completing the pre-landing checks, set up for a landing on runway 30. The pilot reported that, after touchdown, he held the nose wheel off the ground. He stated that the initial landing and roll-through on the steel matting surface were normal (see Fig. 2).

1 Estimated time of departure

2 International time zone system (Zulu Time) or Universal Time Coordinated (UTC) based in Greenwich England; PNG is +10 hours added to local time.

3 SARWATCH stands for Search and Rescue Watch.

Figure 2: Steel Marsden matting[4]

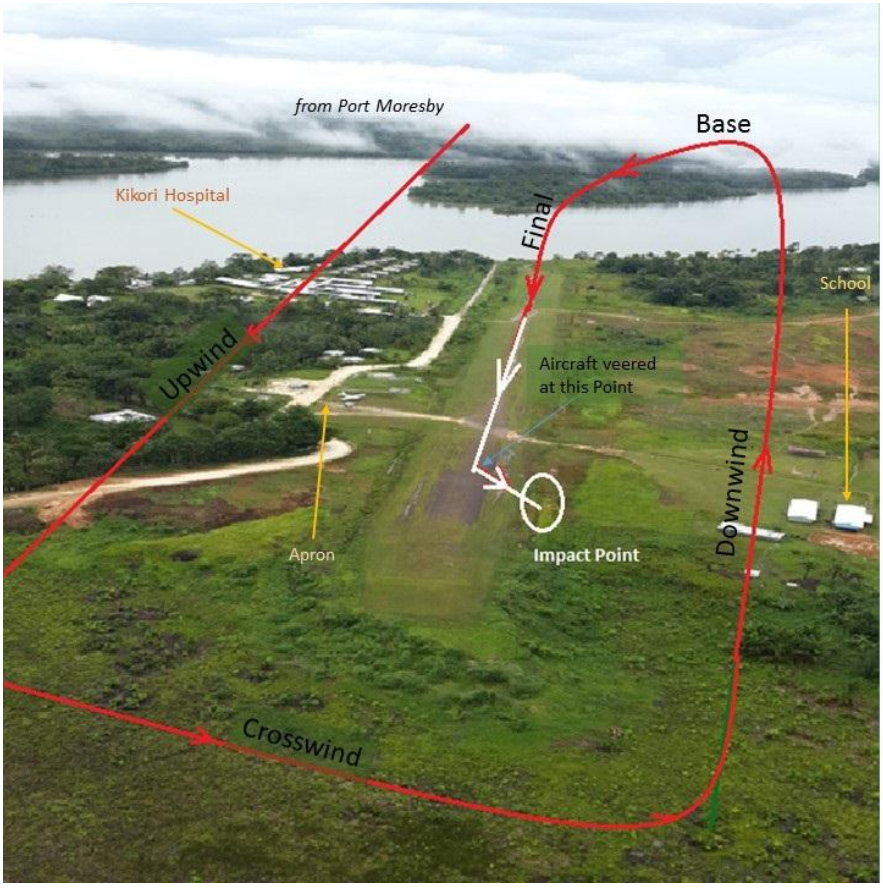


Figure 3: The pattern flown on arrival at Kikori from Port Moresby

4 Marsden matting is standardised, perforated steel matting material originally developed by the United States at the Waterways Experiment Station shortly before World War II, primarily for the rapid construction of temporary runways and landing strips.

Figure 4: Kikori viewed from the runway 30 approach end

As the aircraft approached the mid-point of the runway, he applied braking pressure after lowering the nose wheel to the ground. At approximately abeam the taxiway to the parking bay, the aircraft veered left and ran off the runway (See Figs 3 and 5). The pilot stated that, although he applied even brake pedal pressure (on the left and right brakes), he experienced differential braking which caused the aircraft to veer to the left. He also said that he steered to the left to avoid running off the end of the runway. The aircraft subsequently impacted an embankment beyond the left side of the runway, approximately 70 metres from the runway end (Fig. 5).

Figure 5: Impact with a side embankment to the left of runway 30

Figure 6: Damage to front of aircraft and the nose landing gear assembly

The nose of the aircraft was crushed and the nose landing gear partially collapsed rearwards during the impact with the embankment (Fig. 6). Two of the left propeller blades were bent.

The investigation determined that the aircraft was loaded in accordance with the approved system detailed in the Aircraft Flight Manual (AFM).

The pilot stated that he had landed at Kikori many times in Twin Otter aircraft (while he was employed by other operators), and that he was quite familiar with the Kikori runway and operations at Kikori. During an interview with the pilot two days after the accident, the pilot stated that on arrival in the Kikori circuit area he carried out the pre-landing checks and that there had been normal brake pressure. He said that the aircraft touched down on the threshold of runway 30 and that, during the landing roll, he only applied brake pressure after he had lowered the nose wheel onto the runway surface. The pilot later said that he may have touched down 50 metres beyond the threshold.

The BN2T aircraft SBC did not have reverse thrust.

A witness, who was located on the apron at the time of the accident and who was interviewed during the on-site investigation, stated that the aircraft touched down on the runway 'somewhere between the hospital and the terminal [apron/taxiway]'. That point was approximately halfway along the runway.

Based on the differences between the pilot's statements and the statement by the witness, the AIC was unable to ascertain the exact touchdown point. However, given the pilot's statement that he first applied brake pressure after the nose wheel contacted the runway surface, it is possible that the brakes were applied after the aircraft had passed the mid-point of the runway.

The pilot stated that at the time of the accident the weather was "fine into Kikori, no problem". The Terminal Aerodrome Forecast (TAF) current at the time of accident, forecast the wind to be variable, around 130 degrees at 08 knots, with visibility up to 10 km and showers and rain.

BN2T brake system

The brake system fitted to the BN2T, SBC, has four conventional hydraulic fluid-operated Cleveland disc-type brake units, one fitted at each main landing gear wheel. The brake system includes four hydraulic master cylinder reservoirs, one fitted at each toe-operated brake pedal attached to its respective rudder pedal. When a brake pedal is actuated, the fluid in the brake system transmits pressure, via a combination of flexible hoses and rigid pipelines, to the brake units at the wheels. If abrupt or sudden pressure is applied to the brake pedals, the system may not activate the brakes instantaneously.

AIC comment

Prior to the accident flight, SBC had undergone a 100-hourly maintenance check at Port Moresby performed by the operator's maintenance provider. The AIC was informed that during this check the brake pads had been changed and the brake system had been bled and refilled with hydraulic fluid. The AIC's on-site investigation of the brake system did not reveal any defects in the system, however, the aircraft had been moved after the accident by the operator's personnel and the AIC was unable to determine to what extent the condition of SBC and its systems had changed in the time between the accident and the AIC's arrival at Kikori.

If the aircraft had touched down near the threshold of runway 30 there would have been sufficient runway for the pilot to conduct a safe landing. However, given the conflicting evidence from the pilot and the witness concerning the point at which the aircraft touched down, the AIC was unable to determine where the aircraft first contacted the runway.

The AIC notes that the pilot stated that he steered the aircraft to the left to avoid running off the end of the runway.

General details

Date and time:	23 April 2014	
Occurrence category:	Accident	
Primary occurrence type:	Runway excursion	
Location:	Kikori, Gulf Province	
	Latitude: 07° 25.52′ S	Longitude: 144° 14.87′ E

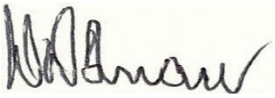
Crew details

Nationality	Papua New Guinea
Licence type	PNG CPL
Licence number	P0304
Total hours	6067.0 hours
Total hours on type	159.9 hours
Total hours last 90 days	83.8 hours
Total hours last 30 days	40.0 hours

Aircraft details

Aircraft manufacturer and model:	Pilatus Britten Norman BN-2T Islander	
Registration:	P2-SBC	
Serial number	3010	
TTIS	2,324.6	
Engine number one (Left)		
Engine manufacturer and model	Rolls-Royce RR 250-B17C	
Engine serial number	CAE-880424	
Propeller manufacturer and model	Hartzell P25EA	
Propeller serial number	FR30	
Engine number two (Right)		
Engine manufacturer and model	Rolls-Royce RR 250-B17C	
Engine serial number	CAE-880464	
Propeller manufacturer and model	Hartzell P25EA	
Propeller serial number	FR261B	
Type of operation:	Charter	
Persons on board:	Crew: 1	Passengers: 0
Injuries:	Crew: 0	Passengers: 0
Damage	Partial damage	

Approved



David Inau
CEO
Accident Investigation