



PRELIMINARY REPORT

AIC 18-1002

Air Vanuatu Operations Limited

ATR 72-500

Loss of directional control during landing roll

Bauerfield International Airport, Port Vila

REPUBLIC OF VANUATU

28 July 2018

FOREWORD

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)*, and the *Commissions of Inquiry Act 1951*, and in accordance with *Annex 13* to the Convention on International Civil Aviation.

In meeting its international obligations under ICAO Annex 13 Standards, the AIC seeks to cooperate with and assist other States in the Region. *Annex 13 Chapter 5, Paragraph 5.1* and *Note 2* state:

5.1 The State of Occurrence shall institute an investigation into the circumstances of the accident and be responsible for the conduct of the investigation, but it may delegate the whole or any part of the conducting of such investigation to another State or a regional accident and incident investigation organization (RAIO) by mutual arrangement and consent. In any event, the State of Occurrence shall use every means to facilitate the investigation.

Note 2.— When the whole investigation is delegated to another State or a regional accident and incident investigation organization, such a State is expected to be responsible for the conduct of the investigation, including the issuance of the Final Report and the ADREP reporting. When a part of the investigation is delegated, the State of Occurrence usually retains the responsibility for the conduct of the investigation.

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 and any other safety concerns identified during the course of the investigation even if not causal to the occurrence being investigated.

It is not a function of the AIC to apportion blame or determine liability. At the same time, 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

This occurrence was formally notified to the AIC on 28 July 2018 with the request from the Director Civil Aviation Authority of Vanuatu (CAAV) for the PNG AIC to conduct the investigation. The CAAV delegated the whole of the investigation to the PNG AIC in accordance with *Paragraph 5.1* of *Annex 13*.

The PNG Minister for Civil Aviation approved the Commission to accept the delegated investigation and dispatch a team of investigators to Vanuatu as soon as possible. Investigators arrived at the accident site on Sunday afternoon 29 July 2018 and immediately commenced the on-site investigation. The investigation is fully supported by AIC staff in Port Moresby and the resources of the AIC's flight recorder laboratory.

The Director CAA Vanuatu undertook to provide guidance on applicable Republic of Vanuatu Civil Aviation Legislation, however, where possible the conduct the investigation will be in accordance with the PNG legislation and the AIC Policy and Procedures, and at all times in accordance with *ICAO Annex 13*.

This *Preliminary Aircraft Accident Investigation Report* was produced by the PNG AIC, PO Box 1709, Boroko 111, NCD, Papua New Guinea. The AIC Chief Commissioner has approved the report for public release.

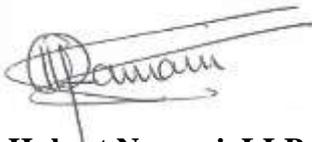
The report is based upon the investigation carried out by the AIC, in accordance with *Annex 13* to the *Convention on International Civil Aviation*. It contains factual information that has been verified at the time of publication.

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*). Consequently, AIC reports are confined to matters of safety significance and may be misleading if used for any other purpose.

When the AIC makes recommendations as a result of its investigations or research, safety is its primary consideration. However, the AIC fully recognises that the implementation of recommendations arising from its investigations will in some cases incur a cost to the industry.

Readers should note that the information in AIC reports and recommendations is provided to promote aviation safety. In no case is it intended to imply blame or liability.

Approved

A handwritten signature in black ink, appearing to read 'Hubert Namani', with a stylized flourish underneath.

Hubert Namani, LLB

Chief Commissioner

10 August 2018

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1 FACTUAL INFORMATION

1.1 History of the flight

On 28 July 2018, at about 23:37 UTC¹ (10:37 local time) a ATR 72-500 aircraft, registered YJ-AV71, operated by Air Vanuatu Operations Limited veered off the runway during the initial landing roll at, Bauerfield International Airport, Port Vila, Vanuatu.

The aircraft was operating a scheduled passenger service from Tanna, Whitegrass Airport to Bauerfield Airport with 39 passengers and a crew of four; two pilots and two flight attendants. None of the aircraft's occupants were injured.

The pilots reported hearing a bang sound and the cockpit engine instruments indicated a loss of oil pressure on the right engine and smoke. They shut down the right engine and commenced the checklists for engine shut down and smoke.

The pilots reported that they encountered flight control abnormalities during the approach to the Bauerfield Airport runway, with the aircraft making uncommanded roll actions.

During the initial touchdown, the aircraft veered left and tracked about 450 metres from the runway towards the hangar. It impacted two parked, unoccupied Britten Norman Islander aircraft. The Pilot in Command's (PIC) stated that they had no nose-wheel steering or brakes and they were powerless to stop the aircraft. It came to an abrupt stop after the collision with the Islanders.

Following the PIC's command to evacuate the aircraft, the cabin crew conducted an orderly expedited evacuation. The passengers and crew safely egressed the aircraft without injury.



Figure 1: ATR 72-500 YJ-AV71 after the impact

¹ The 24-hour clock, in Coordinated Universal Time (UTC), is used in this report to describe the local time as specific events occurred. Local time in the area of the accident, Vanuatu Time (VUT) is UTC + 11 hours.

1.2 Injuries to persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	-	-	-	-
Serious	-	-	-	-
Minor	-	-	-	Not applicable
Nil Injuries	4	39	43	Not applicable
TOTAL	4	39	43	-

1.3 Damage to aircraft

The aircraft was substantially damaged when it impacted two parked, unoccupied aircraft.



Figure: 2: Damage to ATR 72 right main landing gear



Figure 3: Damage to ATR 72 right propeller



Figure: 4: Fractured ATR 72 propeller blade

1.4 Other damage

Two parked Britten Norman Islander aircraft were substantially damaged when they were impacted by the ATR 72.



Figures 5: ATR 72 and two damaged Britten Norman Islanders

1.5 Personnel information

1.5.1 Pilot in command

Age : 34 years
Gender : Male
Nationality : France
Position : Line pilot
Type of licences : ATPL Vanuatu
Route : Endorsed
Type rating : ATR 72 500
Total flying time : 7,205.4 hours
Total on ATR 72-500 : 3,870.2 hours
Total hours last 30 days : 35.9 hours
Total hours last 7 days : 1.6 hours
Total hours last 24 hours : 1.6 hours
Competency test ATR 72-500 Simulator : 15 December 2017
Medical class : One
Valid to : 2 July 2019
Medical limitation : Prescription lenses to be worn

1.5.2 Copilot

Age : 27 years
Gender : Male
Nationality : Vanuatu
Position : Line pilot
Type of licences : CPL Vanuatu
Route : Endorsed
Type ratings : ATR 72 500
Total flying time : 1629.7 hours
Total on ATR 72-500 : 55.0 hours
Total hours last 30 days : 26.8 hours
Total hours last 7 days : 3.1 hours
Total hours last 24 hours : 1.6 hours
Competency ATR 72-500 Type Rating : 30 March 2018
Medical class : One
Medical valid to : 27 April 2019
Medical limitation : Nil

1.6 Aircraft information

1.6.1 Aircraft data

Aircraft manufacturer	: Avions de Transport Regionale (ATR)
Model	: ATR 72-500
Serial number	: 720
Year of manufacture	: 2005
Nationality	: Republic of Vanuatu
Registration	: YJ-AV71
Name of the owner	: NAC Aviation 8 Limited
Name of the operator	: Air Vanuatu Operations Limited
Certificate of Airworthiness number	: 285
Certificate of Airworthiness issued	: 28 April 2018
Valid to	: 3 April 2019
Certificate of Registration number	: 285
Certificate of Registration issued	: 5 April 2017
Valid to	: non-terminating
Total airframe hours	: 19,887 hours 39 minutes

Engine data

Engine type	: Turbo-propeller
Manufacturer	: Pratt and Whitney Canada
Type	: PWC 127

Engine number one (Left)

Part number	: PW127M
Serial number	: PCE-ED0192

Engine number two (Right)

Part number	: PW127M
Serial number	: PCE-ED0190

The right engine was shut down by the pilots following an inflight malfunction. A subsequent borescope² examination of the right engine was conducted by a Pratt and Whitney Canada engineer in the presence of a PNG AIC investigator. (See section 1.16)

² A **borescope** is an optical device consisting of a camera that is connected to an eyepiece via a relay tube; a rigid or flexible tube. A borescope allows the examination of places that are otherwise inaccessible or not viewable by the naked eye such as the internal examination of an engine.

Propeller data

Manufacturer : Hamilton Standard
Propeller type : Six blade, full feathering, electronically controlled

Propeller number one (Left)

Part number : 815500-3
Serial Number : FR20061250

Propeller number two (Right)

Part number : 815500-3
Serial Number : FR991153

1.7 Meteorological information

There was no significant weather for the landing at Bauerfield Airport, Port Vila.

1.8 Aids to navigation

Ground-based navigation aids, on-board navigation aids, and aerodrome visual ground aids and their serviceability were not a factor in this accident.

1.9 Communications

About 20 minutes before landing at Bauerfield Airport the PIC broadcast a MAYDAY³ message.

All communications between air traffic services (ATS) and the pilot were normal and did not contribute to this accident.

1.10 Aerodrome information

Bauerfield International Airport, Port Vila, Republic of Vanuatu

- Airport Operator: Airports Vanuatu Limited
- Longitude: 168° 19' 11" E
- Latitude: 17° 41' 57" S
- Elevation: 70 feet (21.3 metres)
- Runways: 11/29
- Length: 2,600 metres (8,530 feet)
- Surface: Asphalt.

The airport infrastructure did not contribute to this accident.

³ MAYDAY broadcast is an emergency procedure word used internationally as a distress signal.

1.11 Flight recorders

The aircraft was equipped with a flight data recorder (FDR), a cockpit voice recorder (CVR); and a Quick Access Recorder.

At the time of finalising this Preliminary Report the recorded data was being analysed.

1.12 Wreckage and impact information

The ATR 72 sustained significant damage to the right propeller assembly and right landing gear and its associated nacelle. The ATR collided with the vertical stabiliser (fin) and rudder of a Britten Norman Islander, then the ATR's right landing gear rode up over the forward fuselage of another Britten Norman Islander destroying that Islander's forward fuselage. The fin and rudder of the second Islander were also impacted by the ATR and torn from the aircraft.

1.13 Medical and pathological information

There was no evidence that physiological factors or incapacitation affected the performance of the pilots.

1.14 Fire

There was no evidence of pre- or post-impact fire.

1.15 Survival aspects

Following the PIC's command to evacuate the aircraft, the cabin crew conducted an orderly expedited evacuation. The passengers and crew safely egressed the aircraft without injury.

1.16 Tests and research

A Borescope examination of the right engine was conducted by a Pratt and Whitney Canada engineer in the presence of a PNG AIC investigator. The engine was subsequently removed from the aircraft and is being sent to the Pratt and Whitney Canada factory in Montreal, Canada for disassembly and detailed examination under the supervision of investigators from the Transportation Safety Board of Canada.

1.17 Organisational and management information

1.17.1 The Owner

The aircraft was owned by NAC Aviation 8 Limited
5th Floor, Bedford House
Henry Street, Limerick, Republic of Ireland.

1.17.2 Operator

Air Vanuatu is an airline with its head office in the Air Vanuatu House, Port Vila, Vanuatu. It is the national flag carrier of the Republic of Vanuatu. The airline operates scheduled passenger services within Vanuatu and internationally to Australia, New Zealand and destinations in the South Pacific. Its main base is Bauerfield International Airport, Port Vila.

Air Vanuatu has its maintenance base at Bauerfield International Airport.

1.18 Additional information

The investigation is continuing and will include a detailed examination and analysis of the engine, recorded data from the aircraft and Air Traffic Services, maintenance and flight operations documentation and the details from interviews with relevant personnel.

1.19 Useful or effective investigation technique

The investigation is being conducted in accordance with PNG Legislation and Civil Aviation Rules, and AIC Investigation policies and procedures, and in accordance with the Standards and Recommended Practices of Annex 13 to the Convention on International Civil Aviation.