ACCIDENT INVESTIGATION COMMISSION

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Safety recommendation: AIC 19-R23/18-1002

Addressed to: Air Vanuatu (Operations) Limited

Date issued: 9th August 2019

Investigation link: AIC 18-1002

Action status: Issued

Introduction

On 28th July 2018, at 23:37 UTC[1] (10:37 local time) an Avions de Transport Regional, ATR72-500 registered YJ-AV71 (AV71), operated by Air Vanuatu Operations Limited was on a scheduled flight from Whitegrass Airport, Tanna to Bauerfield Airport, Port Vila. During its landing roll, the aircraft lost directional control and veered off, towards the left of runway 29, and collided with two unoccupied Brittan Norman Islander Aircraft. The ATR had 39 passengers and four crew; two pilots and two Cabin Crew. No injuries were reported.

This occurrence was formally notified to the PNG Accident Investigation Commission (AIC) on 28th 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 *Annex 13 Paragraph 5.1*.

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 29th July 2018 and immediately commenced the on-site investigation. The investigation was fully supported by AIC staff in Port Moresby including the resources of the AIC's flight recorder laboratory.

Both the States of Manufacture of the Aircraft and the Engine participated as accredited representatives to the investigation. The manufacturer of the aircraft, ATR, and the engine, Pratt & Whitney Canada (P&WC) were involved as advisors to their respective accredited representatives.

In the absence of an independent investigation authority, the Director of the CAAV, represented the State of Operator, Registry and Occurrence undertook to provide guidelines on applicable Republic of Vanuatu Civil Aviation Occurrence Investigation Legislation. However, where possible the conduct of the investigation was to be in accordance with the PNG legislation, the *AIC Policy and Procedures*, and at all times in accordance with *ICAO Annex 13*.

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.

Occurrence

While enroute at 16,000 ft and about 60 nm from Port Vila, the flight crew noticed the No. 2 engine (right engine) *Inter Stage Turbine Temperature (ITT)* gauge increase rapidly and subsequently exceed its normal operating limits with the Master Caution visual and aural warnings being triggered.

Both the crew and passengers reported hearing loud banging noises from the right side of the aircraft. Some passengers reported seeing white flashes in the cabin. The investigation determined that the noises were as a result of the No. 2 engine compressor stalling.

At 23:20:54, the Senior Cabin Crew (SCC) was notified of the engine abnormality by the PIC via the crew interphone system. The SCC subsequently notified the flight crew that there was smoke entering the cabin from the right side of the cabin. The PIC broadcasted a *MAYDAY* and notified Vila Air Traffic Control (ATC) of their descent intentions. The pilots commenced the descent and proceeded to complete their checklist.

About 6 minutes after the first abnormal engine event, the No. 2 engine *oil low pressure warning* alert activated on the *Crew Alert Panel*. The pilots referred to the '*QRH*[2] *Engine Oil Low pressure checklist'* and subsequently shut down the No. 2 engine. The rest of the descent and the landing was conducted with the No. 2 engine inoperative.

During the landing flare, the aircraft entered an un-commanded pitch up, forcing the PIC to release control of the power levers, and using both hands he pushed the control column forward in order to regain control of the pitch and therefore lowered the nose of the aircraft. The copilot subsequently placed his hands on the power lever controls as the aircraft landed. Flight data analysis showed that one second after touchdown, both power levers were recorded to have been set to max reverse.

The aircraft did not have hydraulically powered nosewheel steering and main-wheel brakes. Rudder authority, for ground aerodynamic steering was substantially limited because the switch for manual operation was not set to the appropriate setting. Reverse thrust was applied during the landing roll, which induced a significant left yaw resulting in the subsequent runway excursion.

Safety Deficiency description

According to the *Air Vanuatu Check & Training Manual (CTM), Section 2.16*, flight crew members are required to undergo a Flight Crew Operational Competency assessment every 6 months and CRM recurrent/renewal course every 12 months. The Air Vanuatu policy is for all *Part 121* aircraft competency assessments to be conducted in a flight simulator. The simulator training is conducted under a service agreement with Air New Zealand.

The investigation determined that:

1. The *Air Vanuatu CTM* does not contain any specific recurrent training requirements for smoke emergencies;
2. The PIC was last checked on smoke procedures on 11th May 2015, more than three years prior to the accident; and
3. The training records of the PIC showed, inconsistency in some of the simulator training.

During the emergency, the flight crew were unable to correctly diagnose the source of the smoke. This led to the selection and action the incorrect checklist resulting in the shutdown of numerous aircraft systems.

The PIC was not current-and proficient with techniques for smoke diagnosis and appropriate actions required for smoke removal and control during a smoke emergency procedure.

The investigation determined that the flight crew were not adequately trained on smoke emergency procedures.

2 QRH: *Quick Reference Handbook* checklist

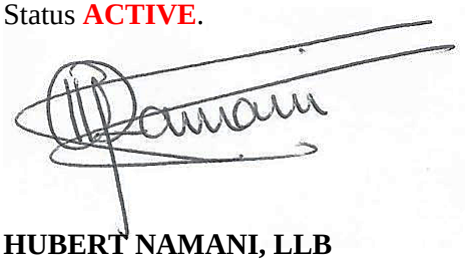
Recommendation number *AIC 19-R23/18-1002* to Air Vanuatu Operations Limited

The PNG Accident Investigation Commission recommends that Air Vanuatu Limited should ensure that its flight crew are adequately trained, current and competent in the execution of smoke emergency procedures.

Action requested

The AIC requests that Air Vanuatu Operations Limited note recommendation *AIC 19-R23/18-1002*, and provide a response to the AIC within 90 days of the issue date, and explain (including evidence) how Air Vanuatu Operations Limited has addressed the safety deficiency identified in the safety recommendation.

Status **ACTIVE**.



HUBERT NAMANI, LLB

Chief Commissioner

9th August 2019.