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Safety recommendation: AIC 19-R01/18-1004

Addressed to: Air Niugini Limited

Date issued: 7 February 2019

Date reissued: 25 March 2019
(Amended Safety Deficiency text page 2)

Investigation link: TC&I 18-1001 (AIC 18-1004)

Action status: Issued

Introduction

On 28 September 2018, the Federated States of Micronesia, Department of Transportation, Communications and Infrastructure (DTC&I) was notified of the aircraft accident referenced in this safety recommendation. DTC&I commenced an investigation and deployed investigators to Chuuk and invited the Papua New Guinea Accident Investigation Commission (AIC) to join the investigation in the capacity of the State of Registry and also a State providing experts and facilities for the investigation. The AIC team is comprised of an Accredited Representative and Technical Advisers. The US National Transportation Safety Board (NTSB) as the State of Manufacture of the aircraft and in response to FSM National Government's request for assistance also sent a team comprised of an Accredited Representative and Technical Advisers from the Federal Aviation Administration (FAA) and Boeing. Technical Advisers from the US National Weather Service are assisting the US Accredited Representative.

The Transportation Safety Board of Canada (TSBC) as the State of Manufacture of specific components appointed an Accredited Representative and Technical Advisers to download the data from the AFIRS.

The PNG AIC has identified a significant safety deficiency, which if not rectified could result pilots using incorrect data and procedures and contribute to an accident or serious incident. The FSM DTC&I investigator in charge supports the PNG AIC issuing this safety recommendation.

Occurrence

On Friday 28 September 2018, a Boeing 737-8BK aircraft, registered P2-PXE, was being operated by Air Niugini Limited, on a scheduled passenger flight from Pohnpei to Chuuk, Federated States of Micronesia.

At 23:17:19 UTC1 (09:17:19 local time) the aircraft impacted the water of Chuuk Lagoon about 1,443 ft (440 m) short of the runway 04 threshold, during its approach to runway 04 at Chuuk International Airport. As the aircraft settled in the water, it turned clockwise through 210° and drifted 460 ft (140 m) south east of the runway 04 extended centreline, with the nose of the aircraft pointing about 265°.

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, Pacific/Chuuk Time is UTC + 10 hours.

There were 12 crew members and 35 passengers on board. Six passengers were seriously injured, and one passenger was fatally injured.

The 12 crew members and 34 passengers exited the aircraft and were promptly rescued and brought to shore by U.S. Navy divers (who were the first on scene), Chuuk State Government boats, Red Cross, Transco, and more than twenty privately-owned boats. Local divers located the fatally injured passenger in the aircraft 3 days after the accident.

Safety deficiency description

Prior to Top of Descent, the copilot used an unapproved *Electronic Flight Bag (EFB²)*; his personal iPad. The copilot used the *Boeing Operation Performance Tool (OPT)* from the his personal *EFB* to calculate the approach and landing performance.

During interviews the copilot claimed that he had insisted that the PIC use Flap 40 for the approach and landing. There was no evidence on the recorded information from the *Cockpit Voice Recorder (CVR)* of the copilot insisting that Flaps 40 should be used.

The CVR revealed that the crew discussed the calculations from the *Boeing OPT¹* in the copilot's *EFB*, which indicated an available buffer of an additional 150 metres for the landing distance if flap 40 was used. The PIC said "we better do a flaps 40." The PIC agreed without questioning the veracity of the data.

The AIC investigation determined that the copilot's use of an unapproved *EFB* such as the *Boeing Onboard Performance Tool (OPT)* was not a recommended operating procedure, and it was not in accordance with the Air Niugini Limited *Flight Crew Operating manual (FCOM)* and *Standard Operating Procedures Manual (SOPM)*. There was no mention of the use of *EFB* as a substitute for the *Airplane Flight Manuals*.

The investigation also found that the *Boeing OPT* is a generic software for all aircraft of the same type, but it does not contain the technical accuracy of data for a specific aircraft, and the aircraft's configuration type.

The investigation determined that during the critical phase of the flight that required analytical and methodical procedures, the copilot's use of the *EFB* overlooked critical operational procedures that would require referencing the respective onboard performance charts and tables, and aircraft data available in the cockpit. The copilot based his calculations from the *EFB* on the use of Flap 40, instead of referring to the Air Niugini approved documents provided in the cockpit. There were variations with respect to required aircraft performance figures using the *Boeing OPT* compared to the figures in the performance charts available in the cockpit.

The investigation therefore, determined that the use of the *EFB* does not comply with the operator's *Standard Operating Procedures Manual (SOPM)*, *Flight Crew Operating Manual (FCOM)*, the technical and information data contained in the specific aircraft's *Aircraft Flight Manual (AFM)* and performance charts, and is not part of the primary flight crew duties.

ICAO Annex 6 contains *Standards and Recommended Practices* with respect to the duties of the pilot in command (PIC).

CHAPTER 4. FLIGHT OPERATIONS

4.2 Operational certification and supervision

4.2.6 Checklists - The checklists provided in accordance with 6.1.4 shall be used by flight crews prior to, during and after all phases of operations, and in emergency, to ensure compliance with the operating procedures contained in the aircraft operating manual and the aeroplane flight manual or other documents associated with the certificate of airworthiness and otherwise in the operations manual. The design and utilization of checklists shall observe Human Factors principles.

¹ Boeing OPT: *Boeing Operation Performance Tool*

4.5 DUTIES OF PILOT-IN-COMMAND

Paragraph 4.5.2 - The pilot-in-command shall ensure that the checklists specified in 4.2.6 (refer below) are complied with in detail.

CHAPTER 6 AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

Paragraph 6.1.4 - The operator shall provide operations staff and flight crew with an aircraft operating manual, for each aircraft type operated, containing the normal, abnormal and emergency procedures relating to the operation of the aircraft. The manual shall include details of the aircraft systems and of the checklists to be used. The design of the manual shall observe Human Factors principles.

The recorded information from the CVR revealed that the PIC's tolerance and non-questioning of the copilot's use of the *EFB*, and his subsequent adherence to the *EFB* data, was not in accordance with *ICAO Annex 6* and the *Air Niugini SOPM*. Therefore, both pilots based their approach and landing performance assessment entirely on the calculations from the *Boeing OPT* contained in the *EFB*.

According to the *Annex 6 Standards*, it is the PIC's duty to ensure all procedures and checks done in the aircraft are in compliance with the procedures stated in the operator's *SOPM* and respective manuals.

Recommendation number AIC 19-R01/18-1004 to Air Niugini Limited

The PNG Accident Investigation Commission recommends that Air Niugini Limited, should ensure that all flight crew comply with the Air Niugini Limited *Standard Operating Procedures Manual (SOPM)* and the *Flight Crew Operating Manual (FCOM)* with respect to operational procedures and primary flight crew duties, and do not use personal *Electronic Flight Bag (EFB)*, and specifically do not use the *Boeing OPT* data during flight operations until approved by Air Niugini Limited.

Action requested

The Accident Investigation Commission requests that Air Niugini Limited note recommendation *AIC 19-R01/18-1004*, and provide a response to the AIC as soon as possible, but no later than 5 May 2019 (within 90 days of the issue date), and explain including with evidence how Air Niugini Limited has addressed the safety deficiency identified in the safety recommendation.



HUBERT NAMANI, LLB
Chief Commissioner

Air Niugini Limited Safety Action

On 6 March 2019, Air Niugini Limited informed the PNG Accident Investigation Commission of the safety actions taken to address the safety deficiencies identified in *Safety Recommendation AIC 19-R01/18-1004* and stated:

Air Niugini has not approved the use of the Boeing OPT. Therefore, it has been again re-enforced to B737 & B767 crew not to use unauthorised Boeing OPT. Secondly, FSOs [Flight Standing Orders] have been issued to B737, B767 & Fokker 70/100 crew not to use electronic flight bag until approved² by CASA PNG.

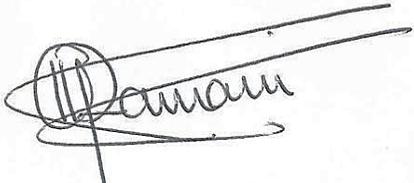
Air Niugini provided evidence in support of the Safety Action Statement.

² CASA PNG does not *approve* the Air Niugini manuals, rather it *accepts* the Air Niugini manuals.

PNG Accident Investigation Commission (AIC) assessment of Air Niugini Limited response

The AIC reviewed the Air Niugini Limited documents providing evidence to the AIC of the safety action taken. The AIC is satisfied that the evidence satisfactorily addresses the safety deficiencies identified in the AIC *Safety Recommendation AIC 19-R01/18-1004*.

The AIC has assigned the Air Niugini Limited response a *fully satisfactory* rating, and records the **Status of the AIC Recommendation: CLOSED RESPONSE ACCEPTED**

A handwritten signature in black ink, appearing to read 'Hubert Namani', is written over a faint, light-colored rectangular stamp or watermark.

HUBERT NAMANI, LLB
Chief Commissioner

16 March 2019