



**FINAL REPORT**

**AIC 15-1002**

**PAPUA NEW GUINEA**

**ACCIDENT INVESTIGATION COMMISSION**

**SHORT SUMMARY REPORT**

**Orege Asaro**

**P2-NOX**

**Cessna Caircraft Company P206**

**Engine failure - fuel starvation**

**Goroka Airport**

**PAPUA NEW GUINEA**

**10 MAY 2015**

## **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. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.

# Engine failure – forced landing involving Cessna Aircraft Company TP206, P2-NOX

## Occurrence details

The pilot who had not flown in Papua New Guinea prior to the accident flight and had no prior experience on Cessna TP206 aircraft, was conducting circuit practice at Goroka Airport on 10 May 2015. His flying training had been conducted overseas in foreign aviation jurisdictions. His PNG Commercial Pilot Licence was issued without any flight test and it carried the group endorsement for single engine aircraft with a maximum allowable take-off weight less than 5,700 kg, and also Cessna 152 and 172 aircraft.

Before undertaking a series of flights with different passenger seating configurations, the pilot had completed a pre-flight inspection of the Cessna TP206, registered P2-NOX. The pilot stated that when he dipped the fuel tanks he noted that there was 115 L in the left tank and 40 L in the right tank.

He took off on runway 17 right with two passengers on the first circuit, and after landing he taxied back to the New Tribes Mission hangar and without shutting the engine down, picked up a third passenger and contacted Goroka Tower for another circuit. After take off on the second circuit the pilot tracked to the north of the field towards the Asaro north gap and Mesauke private school. After flying over the Mesauke private school, the pilot returned to the airport and landed, and taxied back to the New Tribes Mission hangar and picked up a fourth passenger, again while the engine was operating. With five persons on board, the pilot again taxied for runway 17 right.

The takeoff for the third circuit was normal and the pilot did a left turn to position the aircraft on the dead side at circuit height. He turned crosswind abeam the tower for a left downwind runway 35. During the turn the engine's power decreased and then failed. The pilot reported that he attempted to restart the engine a couple of times, but the engine failed to start. He manoeuvred the aircraft and position it on left downwind for runway 35 left. Realising that he was losing height rapidly and would not reach the threshold of runway 35 left, the pilot turned the aircraft towards the airstrip to land across the runway. The aircraft touched down heavily across runway 35 left, destroying the cargo pod, and continued onto the grass between the two runways,. After travelling approximately 100 m the aircraft ending up in the drain east of runway 35. It was substantially damaged.

The AIC investigators checked the aircraft's fuel tanks and found that the right tank had no fuel in it. The left tank had some fuel in it, but the contents could not be verified because the wing was sitting at an angle. The fuel selector valve position could not be verified because the area of the cockpit where the selector valve was located was crushed and distorted during the impact with the drain area.

The total flight time from when the pilot started the aircraft's engine to when the engine failed was about forty two 42 min. With a fuel consumption rate of sixty 60 L per hour the fuel burn would have been about 40 L.

The aircraft engine performed normally in all previous flights. No mechanical defects were found that could have contributed to the engine failure.



Figure 1: Aerial view of the flight path.



Figure 2. Initial impact point





**Figure 3. Aircraft coming to rest in the drain**



**Figure 3: Damage to the propeller and the engine.**



**Figure 4. Damage to the cockpit area**

### **AIC Comment**

The fuel calculations by the AIC investigators indicated that the fuel burn of about 40 L for the 42 minutes equated to the fuel quantity in the right fuel tank when dipped at the pre-flight inspection. It is likely that the fuel tank selector remained selected to the right tank for the 42 minutes covering all the flights. During the last circuit all turns were to the left, so the right tank would have been on the high side of the turn draining all useable and possibly some of the normally un-useable fuel from the wing to the engine. Had the pilot selected the left fuel tank the engine would have operated normally.

The investigation concluded that the engine failed from fuel starvation.

### **Recommendations**

#### **Recommendation number AIC 15-R02/15-1002 to the Civil Aviation Safety Authority of PNG.**

The Accident Investigation Commission recommends that the Civil Aviation Safety Authority of PNG (CASA) should review its flight crew licencing requirements to ensure that all applicants for a PNG Commercial Pilot Licence are flight checked, either by a CASA examiner or an approved operators check and training pilot, prior to the issue of the licence.

#### **Recommendation number AIC 15-R03/15-1002 to the Civil Aviation Safety Authority of PNG.**

The Accident Investigation Commission recommends that the Civil Aviation Safety Authority of PNG (CASA) should review its flight crew licencing requirements to ensure that all applicants for a PNG Commercial Pilot Licence are flight checked on each specific aircraft type, either by a CASA examiner or an approved operators check and training pilot, prior to the issue of the type endorsement.

**General Details**

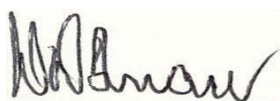
Date and time:	10 May 2015 0430 UTC	
Occurrence category:	Accident	
Primary occurrence type:	Engine Failure – Forced landing	
Location:	Goroka Airport	
	Latitude: 06 04 57	Longitude: 145 23 30

**Crew details**

Nationality:	Papua New Guinea
Licence type:	Commercial (PNG)
Licence number:	P22051
Total hours:	765
Total hours on type:	5.10

**Aircraft Details**

Aircraft manufacturer and model:	Cessna Aircraft Company TP206A (Upgraded to TU206G)	
Registration:	P2-NOX	
Serial number:	TP206 0191	
Engine manufacturer and model:	Continental Motors Inc. TSIO-520-HcM	
Engine serial number:	506593-H	
Propeller manufacturer and model:	McCauley D3A34C402-C	
Propeller serial number:	921103	
Type of operation:	Private	
Persons on board:	Crew: 1	Passengers: 4
Injuries:	Crew: 1 Minor	Passengers: 4 Minor
Damage:	Substantial	

**Approved**


**David Inau**  
**CEO**  
**Accident Investigation Commission**