



PRELIMINARY REPORT

AIC 20-2003



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

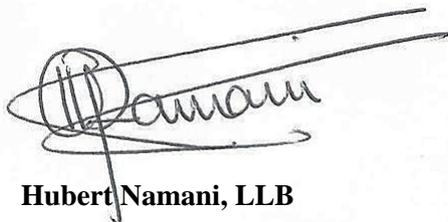
The object of a safety investigation is to identify and reduce safety-related risk. AIC investigations determine and communicate the safety factors related to the transport safety matter being investigated.

On 19 October 2020 at 12:09 local time (02:09 UTC) the AIC was notified by the Civil Aviation Safety Authority of Papua New Guinea (CASA PNG) via phone, of a safety related event occurred on 18 October 2020, involving a DHC-6-400 (Twin Otter) aircraft, registered P2-KSY, owned and operated by Hevilift Aviation Limited. During the initial inquiries, the AIC established that the aircraft was subject to a post occurrence maintenance action and subsequently released back to service before the AIC was made aware of the occurrence. The AIC immediately commenced an off-site investigation.

This Preliminary Aircraft Accident Investigation Report was produced by the AIC, and contains facts known to the AIC before the official release date. It is developed by the Commission in accordance with Para 7.1 of *ICAO Annex 13*. The report is also published on the AIC website: www.aic.gov.pg.

The report is based on the initial investigation activities carried out by the AIC in accordance with *Papua New Guinea Civil Aviation Act 2000 (as amended)*, *Chapter 31* of the *Commissions of Inquiry Act*, *Annex 13* to the *Convention on International Civil Aviation*, and the *PNG AIC Investigation Policy and Procedures Manual*. It contains factual information. Analysis of that information, findings and contributing (causal) factors, other factors, safety actions, and safety recommendations are reserved for the *Final Report*.

The sole objective of the investigation and the Preliminary Report is the AIC's obligation to the *Convention on International Civil Aviation* and in accordance with *ICAO Annex 13*, and thereby promote aviation safety. (Reference: *ICAO Annex 13, Chapter 7*). Readers are advised that in accordance with *Section 219* of the *Civil Aviation Act 2000 (as amended)* and *Annex 13*, it is not the purpose of the Commission's aircraft accident investigation to apportion blame or liability. Fact based statements in the report should not be interpreted as apportioning blame. Consequently, AIC reports are confined to matters of safety significance and may be misleading if used for any other purpose.

A handwritten signature in black ink, appearing to read 'Hubert Namani', is written over a horizontal line. The signature is stylized and somewhat cursive.

Hubert Namani, LLB
Chief Commissioner
17th November 2020

Smoke in the cockpit and hydraulic failure in-flight

Occurrence Details

On 18 October 2020, at 08:54 local time (22:54 UTC¹), a DHC-6-400 Twin Otter aircraft, registered P2-KSY, owned and operated by Hevilift Aviation Limited, that was conducting an IFR passenger flight from Kairik Airstrip, Enga Province to Kagamuga Airport, Mount Hagen, Western Highlands Province, experienced a smoke event and a hydraulic failure in flight after conducting a go around due to low visibility in the approach to runway 30 of the destination airport.

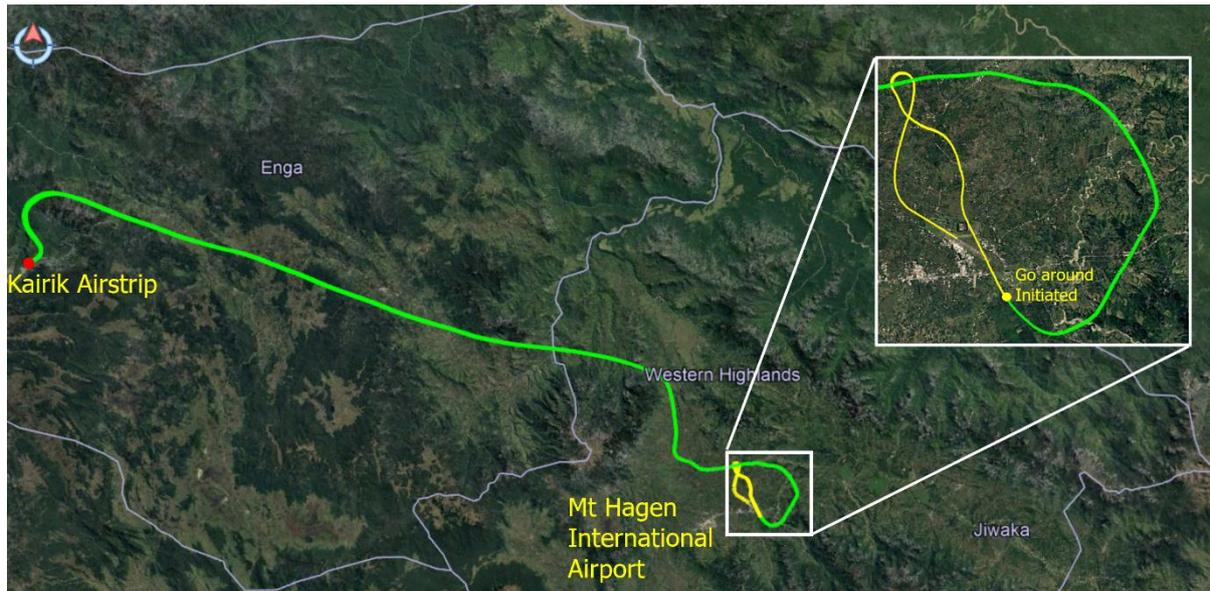


Figure 1: P2-KSY flight path from Kairik to Mount Hagen.

The flight crew was composed of the pilot in command (PIC) as pilot flying, and the first officer (FO) as pilot monitoring.

During the arrival of the aircraft at Mount Hagen area, the air traffic services (ATS) instructed the flight crew to fly to Komon and join right base for approach and landing on runway 30. According to the information provided by the crew during their interview with the AIC, they maintained about 1,000 ft above ground level (AGL) during the track to Komon as they found low cloud and poor visibility along the approach.

As the approach progressed, and consistent with the information from the recordings of the air traffic control frequencies, when the crew reported that they were almost overhead runway 30 but had not sighted the references for landing, ATS therefore instructed the crew to perform a go-around.

The crew completed the go-around and upon rejoining the circuit pattern, a burning smell and subsequently smoke emanating from the floor area on the co-pilot's side was identified by the flight crew. According to their statements, the FO open his side window and the PIC opened the vents and the smoke dissipated. The crew concurrently observed a series of alerts and fault messages related to the aircraft's hydraulic system.

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, Papua New Guinea Time (Pacific/Port Moresby Time) is UTC + 10 hours.

The crew stated that they observed cloud breaks and better visibility along the approach path of runway 12. Therefore, they requested for an approach and landing on runway 12, and for emergency services to be on standby.

ATS cleared the aircraft for a landing on runway 12, and the crew subsequently tracked for approach to runway 12 and landed.

In their interviews, the flight crew stated that due to the hydraulic failure, they decided not to use brakes during landing. Instead of brakes, they decided to use reverse thrust. They also stated that during landing, there was an indication of *Hydraulic Low Pressure Warning*, which was later confirmed by the AIC when analysing the Flight Data Recorder (FDR) data.

The flight crew also stated that landing was followed by a normal taxi to the parking bay where the aircraft parked and, after the shutdown checks, the FO exited the aircraft to secure the aircraft before normally disembarking the passengers.

AIC comment

The investigation is continuing, and will include but not limited to flight operations, aircraft systems, performance, airworthiness and serviceability, weather and organisational aspects, to the appropriate extent.

The investigation analysis and findings will be included in the Final Report.

Safety Actions

At the time of the issue of this Preliminary report, no safety actions had been taken.

Recommendations

At the time of the issue of this Preliminary Report, no Recommendation had been made by the PNG AIC.

General Details

| | | | |
|-----------------------------|--|------------------|-------------|
| Date and time | 18 October 2020, 08:54 local time (22:54 UTC) | | |
| Occurrence category | Serious Incident | | |
| Primary occurrence category | Fire or smoke – Non impact (F-NI) System/component failure or malfunction – Non Powerplant (SCF-NP) | | |
| Location | Mount Hagen Airport, AYMH | | |
| | Latitude | 05°49' 40.08"S | |
| | Longitude | 1 44°17' 58.26"E | |
| Elevation | 5,367 m | | |
| Runways | 1. 12 - 30 / 120° - 300° | Length: 2,190 m | Width: 30 m |
| | 2. 08 - 26 / 80° - 260° | Length: 1,097 m | Width: 18 m |
| RFFS Category | CAT 6 | | |
| Apron surface and strength | Main apron sealed, PCN 20 | | |

Type of Operation, Injury and damage details

| | | | |
|-------------------|-----------------------|-----------------|--|
| Type of Operation | IFR, passenger flight | | |
| Persons on board | Crew: 2 | Passengers: 14 | |
| Injuries | Crew: Nil | Passengers: Nil | |
| Damage | Nil | | |

Crew details

Pilot in Command

| | |
|------------------------|---------|
| Gender | Male |
| Age | 51 |
| Nationality | Dutch |
| Licence type | PNG CPL |
| Total hours | 2,245 |
| Total hours in Command | 854.5 |
| Total hours on type | 1,081.3 |

First Officer

| | |
|------------------------|------------------|
| Gender | Male |
| Age | 40 |
| Nationality | Papua New Guinea |
| Licence type | PNG CPL |
| Total hours | 1,171.4 hr |
| Total hours in Command | 106.6 hr |
| Total hours on type | 614.7 hr |

Aircraft Details

Aircraft

| | |
|------------------------|-----------------|
| Aircraft manufacturer | De Havilland |
| Aircraft Model | DHC-6-400, PT6A |
| Registration | P2-KSY |
| Serial number | 875 |
| Year of manufacture | 2013 |
| Total hours since new | 5,706.08 hr |
| Total cycles since new | 7,183 |

Engine 1

| | |
|-------------------------------|-----------------------|
| Engine manufacturer and model | Pratt & Whitney, PT6A |
| Engine type | PT6A-34 |
| Serial number | PCE-RB0684 |
| Total cycles since new | 6191 |
| Total time since inspection | 31.71 hr |
| Total time since overhaul | 5,703.19 hr |

Engine 2

| | |
|-------------------------------|-----------------------|
| Engine manufacturer and model | Pratt & Whitney, PT6A |
| Engine type | PT6A-34 |
| Serial number | PCS-RB0685 |
| Total cycles since new | 6,204 |
| Total time since inspection | 31.71 hr |
| Total time since overhaul | 5,703.19 hr |

Propellers

| | | |
|------------------------|-----------------------|-----------------------|
| Manufacturer | Hartzell | |
| Model | HC-B3TN-3D | |
| Total Propeller Hours | Engine 1: 2,283.57 hr | Engine 2: 2,650.91 hr |
| Hours since Inspection | 2,283.57 hr | |
| Hours since Overhaul | 2,650.91 hr | |