FINAL REPORT

AIC 15-1004

PAPUA NEW GUINEA

ACCIDENT INVESTIGATION COMMISSION

SHORT SUMMARY REPORT

Islands Airways

P2-MZH

Cessna Aircraft U206G Robertson STOL

Aircraft overturned during landing

Kumbako, Madang Province

PAPUA NEW GUINEA

7 September 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.

The AIC was informed of the Cessna U206G landing accident by a helicopter operator that had been tasked to go to the accident site. The AIC confirmed the initial details of the accident with PNG Air Services Limited, and the aircraft operator. Investigators arrived at the accident site at 01:00 UTC (11:00 am local time) on 8 September 2015.

The AIC has produced a short summary report for greater industry awareness of potential safety issues and possible safety actions.

Aircraft overturned on landing

Occurrence details

At 02:08 UTC[1] on 7 September 2015, a Cessna U206G Robertson STOL aircraft, registered P2-MZH, owned and operated by Islands Airways, was being operated from Madang to Kombaku airstrip, Madang Province under the visual flight rules (VFR). The aircraft was chartered by the Madang Provincial Government to deliver stationary in preparation for the opening of a new classroom at the Kombaku community school. There were three persons on board; the pilot and two adult passengers. On arrival overhead Kombaku, the pilot cancelled SARWATCH (search and rescue watch) and completed a circuit to inspect the surface conditions and wind. He subsequently joined left base and then final for strip 18 (Figure 1).

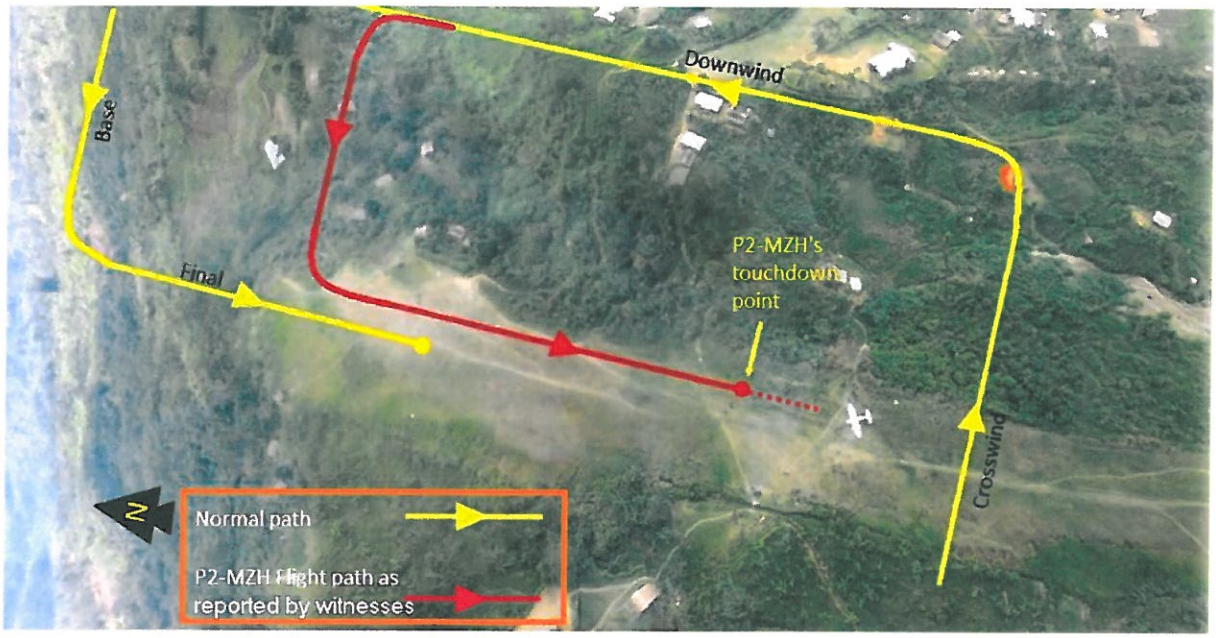

Figure 1: Aerial view of Kombaku airstrip

Witnesses on the ground stated that the aircraft appeared to turn onto the final approach in the vicinity of the end of the strip. One of the passengers who had often landed at Kombaku with this pilot, stated that the aircraft appeared to be unusually high on the final approach and that the approach speed appeared to be faster than normal. The pilot stated that due to the anticipated turbulence[2] on short final, he had established the aircraft on final at 70 kt instead of the normal 60 kt.

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.

2 Due to the terrain on the approach and the surrounding area, downdrafts were often encountered at Kombaku after 10:00 am local time.

The aircraft's nosewheel touched down heavily on the strip about 140m from the threshold and left of the centre line. The aircraft subsequently 'wheelbarrowed' for about 40m, digging into the soft grassy surface of the strip. There was no evidence of the main wheels making contact with the strip surface. The nosewheel dug into the surface, the propeller struck the ground, and the aircraft 'cart-wheeled' and came to rest inverted.

Figure 2: Nose-wheel track

Kombaku airstrip

Kombaku is a small village in the Madang Province, 8.5 nm (16 km) south east of Simbai. Kombaku has a one-way airstrip requiring landing to the south and takeoff to the north only. The surface was undulating with an average slope of 6% up towards the south. Mountainous terrain extends towards the north and east. The village of Kombaku lies to the west of the airstrip.

Kombaku often experiences strong downdrafts because of its position with respect to the surrounding terrain. At times, these downdrafts can be a threat to aircraft because they occur suddenly.

The operator's *Route Guide* for flights from Madang to Kombaku states:

> Route Guide Madang to Kombaku
> No Notams No weather No Phones Check Aiome for alternate.
> Good weather Track Direct to Kombaku.
> Track 255 6000ft 38mins
> Cloud base 5500ft track to Bank if, visual with Kombaku proceed, if not divert to Simbai, Aiome, or Madang. Sometimes pax will opt to walk Simbai to Kombaku.
> Limit Arrival time to no later than 10.30 am due build up of wind and cloud on the slope.
> If you have headwind for landing abort because you will have strong down draft from the North West.
> Use long stable final as there are no visual cue for guidance.
> Strip is short, rough, and bent. Can be boggy at times.
> Because it is steep with no screen height takeoff and landing are no problem if you can line up the strip. Watch out for tail strikes.

Figure 3: P2-MZH at Kombaku

The operator

Islands Airways was certified to operate non-scheduled cargo and passenger flights to domestic aerodromes in Papua New Guinea, under the VFR. The main focus of the operation was charter flights from Madang to rural strips to the west-southwest of Madang.

The operator had authorised the pilot to operate into Kombaku without a prior dual check with a check and training pilot.

The pilot

The pilot had more than 2,500 hours on the Cessna 206 aircraft type and was very familiar with the Robertson STOL modified Cessna 206. He had self-checked over the route from Madang to Kombaku, and into the Kombaku strip. He stated that he had held an Air Navigation Order Part 28 (subsequently Civil Aviation Order Part 28) exemption allowing him to operate into any strip. However, that exemption had lapsed when his pilot license was suspended on 1 September 1993.

While he had landed at Kombaku airstrip on numerous occasions, his competence had never been checked by the operator's approved check and training pilot. His last flight into Kombaku prior to the accident was on 3 September 2015.

On 19 June 2015, the pilot attended a medical practitioner, a Designated Aviation Medical Examiner (DAME) in Mt. Hagen, for the purpose of obtaining his 6-monthly medical certificate issued under Civil Aviation Rule Part 67. The DAME informed the AIC that during the examination, he diagnosed the pilot with severe high blood pressure and was prescribed two types of medication, each to be taken twice daily to treat the high blood pressure.

The aviation medical certificate dated 20 June 2015 stated *'High BP, vision correction'*. A further notation by the DAME stated *'On blood pressure medication. Vision to be corrected as soon as possible'*. The DAME reported that the issued aviation medical certificate renewal dated 20 June 2015, was conditional on him taking the medication and resting for at least 4 days, then being checked by a doctor to ascertain the blood pressure status.

The pilot informed the AIC investigators that he did not take the medication. During the investigation the AIC investigators sighted the unused medication in the original sealed containers. The pilot reported that he visited a medical practitioner in Madang on 22 June 2015, who stated that the pilot did not have high blood pressure at that time. That medical practitioner was not a DAME. While this medical practitioner provided the pilot with a medical certificate stating that he was 'fit for work', that certificate was not an aviation medical certificate. The aviation medical certificate dated 20 June 2015 had not been updated at the time of the accident.

The pilot's flight records revealed that after undergoing the aviation medical examination in Mt Hagen on 19 June, he flew the Cessna 206 from Mt Hagen to Madang on 19 June. He next flew as pilot in command each day from 23 June to 27 June.

The Designated Aviation Medical Examiner (DAME)

The DAME was sufficiently concerned about the pilot's severe high blood pressure to tell him that the issued aviation medical certificate was conditional on him taking the medication and resting for at least 4 days, then being checked by a doctor to ascertain the blood pressure status. However, the DAME did not impose a non-flying condition on the certificate. As a consequence, the pilot ignored the medical instruction not to take the medication and rest for 4 days. The DAME did not send a copy of the medical examination to the PNG Civil Aviation Safety Authority.

Meteorological conditions

There was no significant weather forecast for the area during the period before the accident. The villagers reported that it had not rained there for several weeks.

The pilot stated that as he overflew the strip he observed the windsock hanging straight down, indicating little or no wind near the ground. He said that he did not notice any change during the final approach.

Weight and balance

Company weight and balance charts for the accident flight indicated that the aircraft was loaded within the limits prescribed in the Aircraft Flight Manual.

Aircraft damage

The aircraft was substantially damaged. The rear fuselage was fractured and bent by impact forces when the fin and rudder struck the ground when the aircraft overturned (Figure 4). The wings were destroyed during the impact (Figure 5).

Figure 4: Damage to the tail section

Figure 5: Damage to the right wing

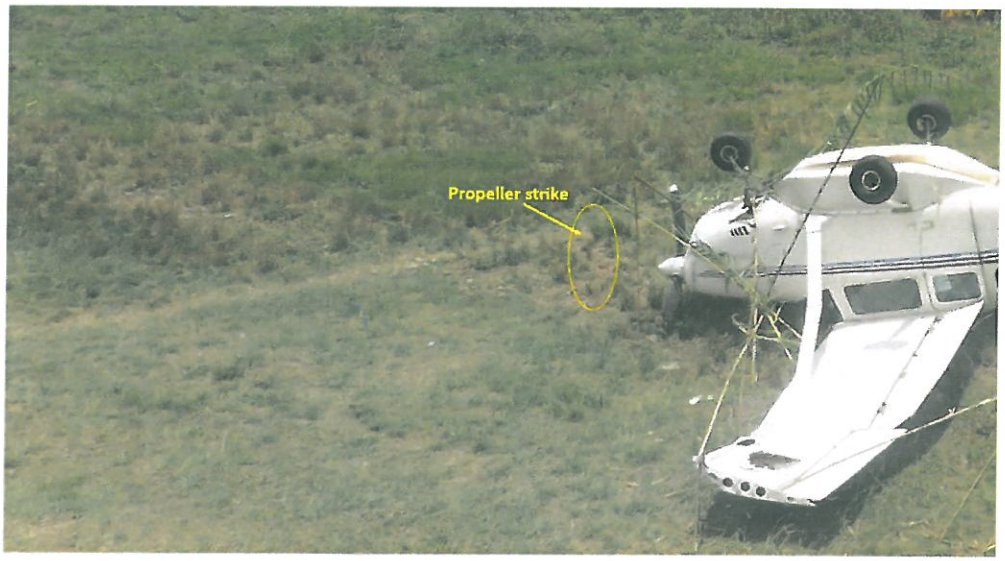

Figure 6: Propeller ground strike

One of the propellor blades was substantially bent at the tip (Figure 7) suggesting that this blade contacted the ground (Figure 6) while the aircraft was 'wheel-barrowing'. The other blades were substantially damaged as the aircraft impacted the ground inverted.

Figure 7: Propeller damage

Island Airways Check and Training

On 8 August 2014, Island Airways and Mission Aviation Fellowship – PNG Limited Aviation Training Centre (MAF ATC)[3] entered into a contractual agreement for MAF ATC to provide check and training for Island Airways. The contractual agreement authorised a nominated MAF ATC pilot[4] to conduct Cessna 206 checks on Island Airways pilots under the authority of the Chief Executive Officer. The contract document did not specify which CEO; Island Airways or MAF. The Island Airways Training and Competency Manager was to provide the approved C&T pilot with a copy of the Island Airways Training and Competency Manual. The investigation found no evidence that the manual was provided to MAF.

On 5 August 2014, 3 days before the contract was signed, the approved C&T pilot conducted a BFR with the Island Airways Chief Pilot. The BFR competency form stated that the pilot unsuccessfully demonstrated competence in exercising the privileges of a CPL.

On 15 August 2014, 7 days after the contract was signed, the Island Airways Chief Pilot again did not successfully demonstrate competency during a further BFR test. On 9 September 2014, the Chief Pilot submitted to a further BFR and on that occasion was successful.

The BFR checks conducted by the approved C&T pilot were under the MAF ATC Civil Aviation Regulation (CAR) Part 141 certificate. There was no evidence of any further check flights conducted by MAF ATC on Island Airways pilots between 10 September 2014 and 7 September 2015, nor was there evidence of requests from Island Airways for such services.

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[3] For the purposes of this report the Mission Aviation Fellowship PNG Limited Aviation Training Centre will be abbreviated as MAF ATC

[4] For the purpose of this report the CASA approved check and training pilot under the terms of the contract between Island Airways and MAF ATC will be termed 'approved C&T pilot'.

The Island Airways Flight Operations Manual dated 30 January 2015, Revision 1/2015 stated:

> **2.3.2 CHIEF PILOT**
>
> 5. The Chief Pilot is directly responsible for:
>
> e. Maintaining a record of licenses, medicals, ratings and route qualifications held by each crew member and ensuring their continued validity and recency.
>
> k. Ensuring that all personnel are trained and proficiency checks are carried out in accordance with section 6. Of this manual and that all training conducted is correctly certified, documented and retained by continuous liaison with and conduct a review during the Management Review Meetings with the contracted check and training organisation.
>
> 10. Liaison with MAF for check and training competency.

There was no evidence of Management Review meetings being held by Island Airways with MAF ATC as required by the approved Island Airways Flight Operations Manual.

Given that the approved C&T pilot departed PNG on 12 September 2014 (see below), and that no requests for MAF ATC services had been made by Island Airways after 9 September 2014, the inclusion of MAF ATC as the approved check and training organisation in the 30 January 2015 revision of the Island Airways Training and Competency Manual appears to be misleading.

MAF-PNG ATC

The MAF ATC approved C&T pilot reported that prior to the BFR check flights, he informed the Island Airways Chief Pilot of his proposed departure from PNG. On 12 September 2014, the approved C&T pilot departed Papua New Guinea. On 27 January 2015, MAF notified the Director CASA PNG of the resignation of the approved C&T pilot. The MAF advice to Director CASA PNG stated:

> At this stage, MAF does not have an immediate replacement, and therefore ceased all training activity covered by certificate 141/003 and will not conduct any further training until such time that a suitable senior person has been approved by yourself.

A further letter to the Director CASA dated 30 June 2015 informed him that while MAF still intended to operate a Standard Aviation Training Organisation, a senior person and instructor had not been appointed. MAF assured CASA no training would be conducted until the appointments has been resolved.

Given that the approved C&T pilot departed PNG on 12 September 2014, and that no requests for MAF ATC services had been made by Island Airways after 9 September 2014, the inclusion of MAF ATC as the approved check and training organisation in the 30 January 2015 revision of the Island Airways Training and Competency Manual appears to be misleading.

On 7 October 2015, the MAF PNG Program Manager wrote to the CEO of Island Airways and CASA formally terminating the contract, which had not been functional for 12 months.

Civil Aviation Safety Authority of PNG oversight of Island Airways

The Civil Aviation Safety Authority of PNG (CASA) had not received any medical records relating to the pilot since 2007.

The CASA audit report of Island Airways, conducted between 27 April and 1 May 2015 stated:

> 4.3.2.1.1 Check and Training Approvals / Authorisation
>
> Under CAR 119, an arrangement has been entered into with Mission Aviation Fellowship (MAF) to provide flight crew training and check (competency) for Island Airways Chief Pilot and as necessary, Line Pilots.
>
> All training and checking will be done in accordance with Island Airways Manuals and accordingly, whilst Section 6 remains as part of the Operations Manual, a copy of the Operations Manual will be provided to Mission Aviation Fellowship (MAF) for reference to ensure compliance.

The CASA Lead Auditor informed the AIC that no cross checks were carried out, including with MAF-PNG ATC, to verify if Island Airways was meeting the terms of the check and training contract as specified in the Island Airways Flight Operations Manual. He confirmed that in hindsight, the requirements had not been met with respect to:

- providing a copy of the Island Airways Flight Operations Manual to the Check and Training contractor;
- conduct of Management Review Meetings; and
- a further competency check flight of the Chief Pilot, which was due no later than 9 March 2015.

The CASA auditor confirmed that the Island Airways, as the certificate holder, was responsible for requesting check and training for its pilots as required under the CAR 135.

AIC comment

The accident

There was no evidence that the aircraft was unserviceable at the time of the accident flight and all company maintenance documents examined by the AIC suggested that there were no mechanical issues. The pilot and passengers confirmed that nothing appeared to be unusual with the aircraft and its performance during the approach and landing.

Witness statements indicated that the pilot established the aircraft too high on the final approach and then corrected by putting the aircraft in an unusually steep descent. This led to the aircraft being in a nose-down attitude at touch-down, instead of the nose-up attitude to allow for the up-hill slope of the strip and the required landing flare. In consequence, the aircraft touched down on the nose wheel instead of on the main wheels, and it 'wheel-barrowed' along the strip for about 40m. The propeller then struck the ground and dug into the strip causing the aircraft to overturn.

Medical

While there was no evidence to suggest that a physiological condition contributed to the accident, the AIC found that, subsequent to his aviation medical examination on 19 June 2015, the pilot had not satisfied the requirements of Civil Aviation Rule Part 67.53 (a), in that he had not undergone a subsequent medical examination by a Designated Aviation Medical Examiner (DAME) to establish that he no longer had a medical condition as described in Subpart D, Part 67.105 (b) (6) with reference to the high blood pressure, and Part 67.105 (c) that he had met the vision correction requirements specified in the medical certificate dated 20 June 2015.

The pilot's fitness for work as a pilot had not been assessed by a DAME and the certificate stating that the pilot was fit for work was not issued by a DAME.

Flight operations

The investigation found that Island Airways was not operating in accordance with its approved Flight Operations Manual at the time of the accident. The MAF ATC approved C&T pilot departed PNG on 12 September 2015. On 27 January 2015, MAF notified the Director CASA PNG of the resignation of the approved C&T pilot which effectively rendered the contractual arrangement between MAF-PNG ATC and Island Airways void. The CASA audit in May 2015 was not robust. As a result the audit was not sufficiently evidence based and therefore did not identify the Island Airways check and training deficiency. CASA subsequently approved the issuance of an AOC without a check and training organisation in place as required by the Island Airways Flight Operations Manual. Island Airways continued to operate until the date of the accident outside the requirements of its approved structure and procedures.

The Civil Aviation Safety Authority of PNG (CASA) safety oversight of Island Airways Flight Operations did not detect that Island Airways was not operating in accordance with its Flight Operations manual.

Recommendations

Recommendation number AIC 15-R22/15-1004 to Islands Airways

The Accident Investigation Commission recommends that Islands Airways review its check and training procedures to ensure that the procedures meet the route and airstrip check and training requirements of Civil Aviation Rule Part 135.

Note: *Recommendation AIC 15-R23/15-1004 issued on 22 September 2015 has been amended and reissued as three stand-alone Recommendations as R23a through 23c for more efficient processing of CASA responses by the AIC.*

Recommendation number AIC 15-R23a /15-1004 to the Civil Aviation Safety Authority of PNG

The Accident Investigation Commission recommends that the Civil Aviation Safety Authority of PNG require Designated Aviation Medical Examiners to provide CASA with the results of medical examinations conducted under Civil Aviation Rule Part 67 on all Papua New Guinea aviation licensed personnel, as soon as possible after the examination.

Recommendation number AIC 15-R23b /15-1004 to the Civil Aviation Safety Authority of PNG

The Accident Investigation Commission recommends that the Civil Aviation Safety Authority of PNG require that Designated Aviation Medical Examiners must not issue an aviation medical certificate until all adverse medical conditions identified during a medical examination, that could affect the safety of aviation, have been cleared by a Designated Aviation Medical Examiner.

Recommendation number AIC 15-R23c /15-1004 to the Civil Aviation Safety Authority of PNG

The Accident Investigation Commission recommends that the Civil Aviation Safety Authority of PNG review its procedures relating to pilot licencing records to ensure that CASA maintains current licensing data.

Recommendation number AIC 15-R24 /15-1004 to the Civil Aviation Safety Authority of PNG

The Accident Investigation Commission recommends that the Civil Aviation Safety Authority of PNG review its auditing practices and procedures to ensure they are evidence based, and that auditors verify operators' compliance with approved operations manuals and that they are conducting flight operations in accordance with Civil Aviation Rules.

General details

Date and time:	7 September 2015 02:08 UTC	
Occurrence category:	Accident	
Primary occurrence type:	Aircraft overturned during landing	
Damage	Substantial airframe and propeller damage	
Location:	Kombaku Airstrip, Madang Province	
	Latitude: 05°22 57.4S	Longitude: 144°38 08'.9 E
Type of operation:	VFR charter	
Persons on board:	Crew: 1	Passengers: 2
Injuries:	Crew: 1	Passengers: 1

Crew details

Nationality	Australian
Licence type	PNG ATPL
Licence number	P20197
Total hours	17,273.6
Total hours on type	2,500
Total hours last 90 days	110.1
Total hours last 7 days	11.5

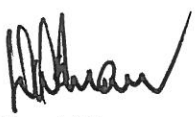
Aerodrome details

Aerodrome and code	Kombaku
Runway directions	18/36 (landing 18 only, takeoff 36 only)
Runway slope	Undulating 6% up to the south
Runway surface and strength	Grass and hard (soft to the left and right of centreline)
Runway length	420 m (estimated as it was still under construction)
Runway elevation	5,400 ft

Aircraft details

Aircraft manufacturer and model:	Cessna Aircraft Company U206G
Registration:	P2-MZH
Serial number	U20603602
Total time in service	7,600.6
Engine	
Engine manufacturer and model	Teledyne Continental IO-520F
Engine serial number	175855-R
Total time	1,977.55
Propeller	
Propeller manufacturer and model	McCauley
Propeller serial number	941723
Total time	1,995.3

Approved



David Inau

Chief Executive Officer

13 October 2015