



AIRCRAFT ACCIDENTS and INCIDENTS

**GUIDANCE
for
AIRCRAFT OPERATORS
and
SERVICE PROVIDERS**



TO REPORT AN AIRCRAFT ACCIDENT or INCIDENT

Telephone the

Civil Aviation Safety Authority of PNG (CASA)

+675 302 7528 (21:30 – 06:00 UTC)
+675 7698 0239 (06:00 – 21:30 UTC)
+675 7031 4167 (06:00 – 21:30 UTC)

and the

PNG Accident Investigation Commission (AIC)

+675 323 2911 or +675 7550 0715 (06:06 - 21:45 UTC) Duty Investigator
+675 323 2184 or +675 7550 0703 (06:06 - 21:45 UTC) Duty Investigator

GENERAL ENQUIRIES

PNG Accident Investigation Commission

Level 1, NAQIA Haus, Portion 81, Moera Tobo Rd, 6 Mile, National Capital District, PNG

PO Box 1709, BOROKO, National Capital District, PNG

Tel: +675 323 2911,

Fax: +675 323 2139,

E-mail: infor@aic.gov.pg

Website: www.aic.gov.pg

Contents

Statement by the Minister for Civil Aviation	2
Foreword by the Chief Commissioner	3
1. About the Accident Investigation Commission	4
2. What is an accident or serious incident?	7
3. Who should report the accident or serious incident and how?	8
4. What the AIC needs to know — Notification	9
5. Preservation of evidence	10
6. The role of the AIC	11
7. The AIC’s legal powers to investigate	12
8. Legal powers of an AIC Investigator	13
9. The AIC response	13
10. The investigation process	15
11. Safety Recommendations	16
12. Safety actions	16
13. Areas not within the scope of the investigation	16
14. International context	17
15. Participation in AIC investigations	17
16. Overseas investigations	17
17. The role of the Advisor	18
18. Operator emergency planning	19
19. AIC interface with an operator or service provider during an investigation	20
20. Internal investigations conducted by operators and service providers	21
21. Media relations	22
22. Passenger assistance	23
23. Flight Data and Cockpit Voice Recorders	24
24. Police and judicial investigations	27
25. Civil Aviation Regulator	28
26. Accident site safety	28
27. Recovery of wreckage	29
28. Wreckage recovery from the sea	30
Appendix A: Extracts from <i>ICAO Annex 13 to the Convention on International Civil Aviation</i>	33
Appendix B: Roles of the investigation team members	36
Appendix C: AIC_F018 Formal Request for Interview or Production of Evidence	37
Appendix D: AIC_F044 Declaration of Conflict of Interest	39

Statement by the Minister for Civil Aviation

As Minister responsible for Civil Aviation I am pleased to provide a statement of endorsement to this Booklet produced by the PNG Accident Investigation Commission, providing as the title states *GUIDANCE FOR AIRCRAFT OPERATORS AND SERVICE PROVIDERS*.



The AIC is the Nation's lead agency in conducting independent no-blame aircraft accident investigations to determine why an accident or serious incident happened and make findings and recommendations for preventing similar accidents in the future. It is independent of all regulatory and judicial authorities, and service providers

The expectations of the International Civil Aviation Organization are being met and in many areas are being exceeded by the AIC. ICAO expects completion of investigations with the public release of reports within 12 months, so I am particularly pleased that the AIC is producing high quality investigation reports that are receiving endorsement from ICAO, States of Manufacture, and aircraft manufacturers well inside the ICAO time guidelines. Significant safety actions have been taken by aircraft manufacturers, operators and service providers to address safety concerns identified during AIC investigations, with some having international ramifications for global aviation safety.

The AIC is now well placed as a leader in aircraft accident and serious incident investigations in the South Pacific Region. This International recognition of the AIC's investigation capability was evidenced on 28 July 2018 when the Government of the Republic of Vanuatu requested assistance from the AIC and subsequently delegated the whole of the investigation into a major aircraft accident involving a ATR 72-500 aircraft at Port Vila, Vanuatu, in accordance with *ICAO Annex 13 Standards*.

The Chief Commissioner, Mr. Hubert Namani, and his executive management team have shown strong leadership and the strength of commitment of the AIC team of investigators and support staff is obvious to me, and I congratulate all members of the AIC for the service they are performing on behalf of the Nation.

On 26 January 2018 I officially opened the Commission's new office at 6 mile, National Capital District. The new office with its technical resources including a Flight Recorder Laboratory, brought the AIC a major step closer to ensuring the AIC will be able to keep pace with technological advancements in the aviation industry.

I am committed to ensuring the AIC is able to meet its International obligations and its legislated mandate, through appropriate resourcing.

I commend this guidance booklet to all PNG aviation industry personnel.



Hon. Alfred Manase, MP

Minister for Civil Aviation

23 September 2018

Foreword by the Chief Commissioner

Aircraft operations within PNG and those operated to and from PNG by International airlines have a high safety record. The rate of aircraft accidents and serious incidents in PNG in recent years has reduced and with that reduction, the rate of fatal accidents has reduced. This improvement cannot be taken for granted. On occasions, an aircraft, its crew and passengers may be involved in an occurrence requiring investigation by the PNG Accident Investigation Commission (AIC). There may also be occurrences involving providers of aviation services and infrastructure. These occurrences are classified as accidents or incidents.



All safety occurrences, accidents, serious incidents and incidents must be notified to the Civil Aviation Safety Authority, with the requirement to notify accidents and serious incidents with a minimum of delay and by the most suitable and quickest means available. The Civil Aviation Rules require an initial notification to be followed within 3 days by a written notification report to CASA using the *Form CA005*.

Operators may choose to conduct an internal initial investigation, but that must not delay the notification to the Authority without delay immediately following the occurrence, in order to ensure that perishable evidence such as recorded flight data is secured. The initial notification should also be made to the PNG AIC. The AIC is the authority for investigating accidents and serious incidents occurring in PNG and its territorial waters.

The AIC, while having a legislated mandate to investigate accidents and incidents, will assess the reported occurrence and normally will investigate accidents and serious incidents, deferring to CASA to investigate the incidents if CASA deems such investigation appropriate and necessary. The AIC complies with the Standards of *ICAO Annex 13* in investigating occurrences and publishing findings, safety action, and safety recommendations.

Modern technology has enabled the AIC in most cases to download Flight and Voice recorded data from an aircraft without having to take the Flight Recorders to the laboratory. This is termed “on-wing download”. This greatly assists aircraft operators in minimising aircraft down time.

Although the investigation into accidents and serious incidents is conducted by PNG’s independent no-blame investigation authority, the AIC, aircraft operators and service providers have an important part to play in the investigation process. The AIC involves them as well as investigation authorities in the States of Registration, Operator, and Manufacture as well as manufacturers throughout the investigation process.

This booklet, prepared by the AIC, sets out what the AIC will normally do, what the AIC expects of an aircraft operator and service providers and how the AIC will interface with an operator and/or service provider during an investigation. It has been developed not only to inform PNG-based operators and service providers, but also foreign airlines operating aircraft to and from PNG.



Hubert Namani, LLB
Chief Commissioner
23 September 2018

1. About the Accident Investigation Commission

AIC objective

Safe transport

Our mission

The AIC's mission is to improve aviation safety by conducting no-blame safety investigations to establish the causes and contributing factors of accidents and serious incidents, and to communicate the findings and recommendations through public dissemination of the reports in compliance with the *PNG Civil Aviation Act 2000 (as amended)* (CAAct) and the Standards of *Annex 13* to the *Convention on International Civil Aviation*.

Mandate and primary function

In accordance with *Part XIII* of the CAAct, the AIC's primary function is to improve aviation safety by investigating accidents and serious incidents, determining the factors that affect, or may affect, aviation safety, and communicating its findings to relevant stakeholders. The AIC conducts its investigations on a 'no-blame' basis. This means the AIC does not apportion blame or liability and does not seek to determine any liability of persons or organisations in transport matters.

Investigations that focus on future safety rather than blame increase stakeholder awareness of, and action on, safety issues and foster industry and public confidence in the transport system. Publishing reports which explain how and why accidents and serious incidents occurred increases safety awareness and knowledge and forms the basis for stakeholders to improve safety action.

Annex 13, to the *Convention on International Civil Aviation*, and the International Civil Aviation Organization (ICAO) documents and circulars relevant to aircraft accident and serious incident investigation set out the standards and procedures against which the AIC benchmarks its work.

Independence

Section 248 of the CAAct provides the basis for the AIC's powers of investigation, and its independence and primacy over evidence.

Section 8 states that the principal functions of the Minister under the CAAct includes that he will ensure that Papua New Guinea's obligations under international civil aviation agreements are implemented.

Therefore, the AIC must comply with the Standards of *ICAO Annex 13*, specifically:

Section 3.1: A State shall establish an accident investigation authority that is independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation.

Section 5.4: The accident investigation authority shall have independence in the conduct of the investigation and have unrestricted authority over its conduct, consistent with the provisions of this Annex.

Section 5.4.1: Any investigation conducted in accordance with the provisions of this Annex shall be separate from any judicial or administrative proceedings to apportion blame or liability.

Independent, objective, no-blame investigation of aviation accidents and serious incidents by a capable PNG safety investigation agency makes a significant contribution to domestic aviation safety and in some circumstances will contribute to aviation safety globally.

Our strategy

We pursue our Mission by:

- focusing on occurrences, unsafe situations and data where the greatest safety benefit can be gained within our given budget through timely investigation, safety analysis and research;
- better matching the delivery of our outputs to the needs of our stakeholders and maximising safety education, including through the use of the Internet; and
- working within, and helping to develop independent transport safety legislation, regulations and/or rules and guidance material to ensure we meet our constitutional role and international obligations.

The organisation

The AIC is led by a Chief Executive Officer who has functional responsibility and strategic oversight of the AIC, reporting to the Chief Commissioner and the Board of the Commission.

The AIC is responsible for investigating accidents and serious incidents involving civil aircraft operations in PNG, and assisting other States investigating an occurrence involving a PNG registered aircraft overseas.

The AIC's headquarters, which includes a Flight Recorder Laboratory, is located in Port Moresby on Level 1, NAQIA Haus, 6-Mile. The AIC consists of about 15 employees located at the AIC's headquarters in Port Moresby.



AIC Office Port Moresby

The executive management team, is comprised of a CEO who is responsible for strategic planning and leadership of the AIC, a Manager of Finance and Administration, and an Investigations Manager responsible for investigation operations.

The Board comprised of three Members, including the Chairman/Chief Commissioner, reviews the facts contained in AIC investigation reports, makes findings and recommendations as to the contributing factors and causes of an accident or incident following recommendation of the Final Report by the Investigations Manager and the Chief Executive Officer (CEO). The Chief Commissioner approves the publication of all Investigation Reports and Safety Recommendations.

Investigators (*See Appendix B*) cover the broad aviation disciplines of Flight Operations, Air Traffic Control and Airports, Aircraft Maintenance Engineering, and Flight Recorder Engineering. Administrative support is provided by an Investigation Support Officer, Accountant, Legal Officer, IT Officer, and Property/Assets Officer.

2. What is an accident or serious incident?

The definitions of an aircraft accident and serious incident are contained in the PNG *Civil Aviation Act 2000 (as amended)*, *Civil Aviation Rules Part 12*, and *ICAO Annex 13*¹ The relevant extracts are shown in *Appendix A*.

The definition of an accident includes:

An aircraft accident is an occurrence associated with operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which the aircraft incurs damage (with certain exceptions) or any person suffers death or serious injury.



Examples:

- A Britten Norman Islander was destroyed during controlled flight into terrain at an altitude of 9,500 ft. The sole occupant, the pilot, was fatally injured. This was an accident.
- A Bell 407 helicopter took off with the pilot unaware that a sling load of fuel drums was attached. The take-off profile used was not for such a load and the load dragged and the helicopter impacted the aerodrome apron.

The helicopter was substantially damaged, but the occupants were uninjured. This was an accident.

- An ATR 42 freighter over-ran the departure end of the runway during a rejected take-off and was destroyed by impact forces and post-impact fire. This was an accident.

The definition of an accident is clear. However, serious incidents appear to be less understood.

A serious incident² is defined in *ICAO Annex 13* as:

‘an incident involving circumstances indicating that there was a high probability of an accident...’.

All incidents must be reported to CASA and desirably the AIC in the same way and with the same time importance as accidents.

¹ Annex 13 to the Convention on International Civil Aviation.

² See Appendix A

If any doubt exists, the incident should be reported and the AIC will make the determination if it constitutes a serious incident.

Examples:



- A Dash 8 and a Kodiak 100 were on opposite direction reciprocal tracks when the Dash 8 was cleared to descend and the Kodiak was cleared to climb. The aircraft were in such close proximity that at the closing speed of 321 kts they were 5.6 secs apart when the Kodiak pilot took evasive manoeuvring action. This was a serious incident.
- A Casa 235M aircraft landed on a runway that was closed for runway works with men and equipment on the runway. The closure had been the subject of a NOTAM for 12 months prior to the landing. This was a serious incident.
- A Fokker F70 was cleared to take off and turn right. It turned into the path of an arriving Kodiak 100 and received a TCAS RA. This was a serious incident.
- Emergency release of sling load from a Bell 407 that entered a high rate of sink at 11,000 ft. This was a serious incident.

3. Who should report the accident or serious incident and how?

It is a **legal requirement** that when an accident or incident occurs in or over PNG, or occurs elsewhere to an aircraft registered in PNG, **the pilot in command** of the aircraft involved at the time of the accident or incident, or if he has been killed or is incapacitated, **the operator** of the aircraft, is required to **notify CASA with a minimum of delay and by the most suitable and quickest means available.**



In the case of an en-route TCAS RA the pilot in command is still required to make the notification *with a minimum of delay and by the most suitable and quickest means available.* That may be by reporting the TCAS RA to ATC or to the aircraft operator using the company radio frequency. In all such cases, the responsibility then rests with the ATC or the operator to notify CASA *with a minimum of delay and by the most suitable and quickest means available* and desirably also notify the AIC.

This applies irrespective of the country in which the operator is based, the country of registry of the aircraft or the country of domicile of the flight crew.

It is an obligation on all people involved in aircraft operations or aviation services to notify CASA of incidents and accidents, in particular if the incident is a serious incident or hazard to the safety of aircraft operations.

Civil Aviation Rule Part 12.55 (b) is clear that this includes any person involved in such incidents if that person operates, maintains, services, or does any other act in respect of any aircraft, aeronautical product, or aviation related service, even if not employed by or associated with the aircraft operator.

The AIC's 24/7 accident notification phone numbers are:

+675 75500715

+675 75500703

Filing a CA005 within 3 working days does not satisfy the legal requirement to notify CASA *with a minimum of delay and by the most suitable and quickest means available.*

The AIC accident and serious incident Duty Investigator is contactable 24 hours a day, 7 days a week. Aircraft operators and Service Providers should ensure that this number is easily accessible to all staff who might need to report an incident or accident and that it is included in the operator's emergency planning documents.

Note: The above telephone numbers will be answered directly by a duty investigator from the AIC.

4. What the AIC needs to know — Notification

A person reporting an accident or serious incident should provide the following information:

Notification should not be delayed if all of the information is not available initially.

- Aircraft manufacturer/model.
- Aircraft registration.
- Name of the owner or operator.
- Number of flight crew and cabin crew.
- Names and qualifications of the flight crew.
- Number of passengers (The AIC will require the flight manifest giving the names and nationalities of all persons on board as soon as possible, but no later than 12 hours after the accident.
- Date and time of the accident / incident in UTC.
- Aircraft's last departure point and its intended destination.
- Type of flight (passenger, cargo, survey, positioning etc).

- Location of the accident with reference to some easily defined geographical point and latitude and longitude.
- Number of crew and passengers (or other persons not on board the aircraft) fatally or seriously injured.
- Description of the accident or serious incident and the extent of damage to the aircraft so far as is known.
- Details of any dangerous goods onboard.
- Confirmation that the CVR/FDR have been isolated. (Electrical power switched off)

The AIC would prefer have an early notification of something that later turns out not to require AIC action than to have a late notification of something that does require AIC investigation. Early notification will ensure appropriate and timely access to recorded data and information.

Following the initial notification, the AIC is likely to want additional information, including:

- Contact details, location and availability of the operating crew.
- Contact details of the operator's safety manager and accountable manager.
- *Passenger Manifest* including contact details for each passenger.
- A copy of the complete flight documents including; navigation logs, load plans, aircraft technical logs, *NOTAMS* and so on.
- ATC recorded data/information and logs.

Much of this information can be pre-identified and included in the aircraft operator's and service provider's emergency planning checklist.

5. Preservation of evidence

Operator emergency planning should take account of the need to preserve critical information and documents.

Following an accident or serious incident it is imperative that an operator swiftly takes all necessary steps to secure the Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR). Detailed information on preserving recorded data is included in the paragraph entitled *Flight Data and Cockpit Voice Recorders*.

Additionally, the operator should impound (preserve from deletion and editing) all records relating to that aircraft and its crew. This should include company electronic records including emails, voicemail and safety databases. The originals should remain protected, but accessible, throughout the course of any investigation which, for the most complex cases, could take many months.

6. The role of the AIC

The Accident Investigation Commission (AIC) is an independent organisation and is completely separate from the Civil Aviation Safety Authority (CAA), Service Providers, and the PNG judicial system. The Chief Executive Officer is directly responsible to the AIC Board where the Board reports to the Minister for Civil Aviation.

The AIC is responsible for the investigation of civil aircraft accidents and incidents to aircraft of any State when the incident or accident occurs within PNG.

The AIC may also commence an investigation when the accident or incident involves a foreign aircraft (being an accident that is required by the *Convention on International Civil Aviation* to be investigated), or is at the interface of the civil and military aviation systems.

The AIC also has the legislated power to investigate any aviation accident or incident that involves any combination of military and non-military persons, aircraft, aerodromes, aeronautical products or aviation related services.

The CAA Act defines “military” as being with respect to any aircraft or facility, or an aircraft or facility operated by the Defence Force or a visiting defence force.

The AIC’s objective is:

To improve aviation safety by determining the causes and contributing factors of aircraft accidents and incidents and encouraging safety action and making safety recommendations intended to prevent recurrence.

It is not the purpose of AIC investigations to apportion blame or liability.

At times the AIC will make findings and recommendations related to safety concerns identified during the course of an accident or incident investigation, that while not related to the root cause of the accident or incident, nevertheless could contribute to an accident or incident in the future if not resolved.

7. The AIC's legal powers to investigate

Under current legislation, and in conformity with international conventions, the AIC is obligated to operate in accordance with:

- *Annex 13 to the Convention on International Civil Aviation.*
- *The Civil Aviation Act 2000 (as amended) (CAAct).*
- *The Commissions of Inquiry Act 1951 (as amended) Chapter 31.*
- *AIC Investigation Policy and Procedures Manual.*

Note: These documents define the procedures to be followed in the investigation of aircraft accidents and incidents and provide the powers for the Commission to obtain evidence in any form and provide for its protection.

The CAAct specifies that for the purposes of carrying out its functions and duties under the CAAct, the Commission shall have the same powers as are conferred on a Commission of Inquiry by the *Commissions of Inquiry Act (Chapter 31)* and all the provisions of that Act, shall apply accordingly. In addition, the Commission shall have all such powers as may be conferred on it by the CAAct or by any other Act, and as may be reasonably necessary or expedient to enable it to carry out its functions.

Section 247 of the CAAct specifies the accidents and incidents to be investigated by the Commission. Additionally, the Commission may decide to investigate any incident where it considers that such an investigation may be expected to bring a significant benefit to aviation safety.

When an accident occurs to an aircraft in PNG, the aircraft (including the contents and parts thereof) are deemed to be in the custody of the Commission for such period as the Commission considers necessary for the purposes of an accident inquiry, and must not be removed or otherwise interfered with except with the permission of the Chief Commissioner, the Deputy Chief Commissioner or the Chief Executive.

It is the AIC's policy to ensure that, as far as possible, its investigations do not disrupt aircraft operations, however sometimes this is inevitable. The AIC Investigator will endeavour to release any aircraft, documents or equipment as quickly as possible, subject to the requirements of the investigation.

The CAAct grants legal powers to AIC Investigators to remove and retain all relevant evidence, including aircraft wreckage, components, and documents, and can have access to and inspect any place, building or aircraft for the purposes of completing their enquiries. They have the authority to take recorded and/or signed statements from anyone involved directly or indirectly with an accident or incident.

8. Legal powers of an AIC Investigator

The powers of an AIC Investigator which are most relevant when dealing with aircraft operators are as follows:

- To have unhindered access to the site of the accident or incident as well as to the aircraft, its contents or its wreckage.
- To have immediate access to and use of the contents of the flight recorders and any other recordings.
- To have unhindered access to any relevant information or records held by the pilot, the owner, the operator, maintainer, the manufacturer of the aircraft, and the organisations responsible for civil aviation, air traffic services, and airports/aerodromes.
- To take statements from all such persons as the Investigator thinks fit and to require any such person to make and sign a declaration of the truth of their statement.
- To take such measures for the preservation of evidence as the Investigator considers appropriate.

When the AIC requires the production of evidence or to conduct an interview in support of its investigation, a Form AIC_F018 will be issued to a specific person responsible for providing the evidence or interview. The issuance of the AIC_F018 form while having strictly enforceable requirements on the recipient, also affords protection in that the evidence or information provided may only be used for investigation purposes under the *CAAct*. (See Appendix C)

9. The AIC response

Upon notification of an accident or incident occurring within the PNG, the AIC will liaise with air traffic control, the aircraft and airport operators, police, and emergency services as appropriate to ensure that evidence associated with the occurrence is secured and to determine the level of AIC response.

The AIC Duty Investigator will inform the Investigations Manager who will notify the CEO. The Duty Investigator will also notify the relevant investigators as soon as possible, and schedule a time at the earliest convenience to meet and discuss the notification details and to determine the type/level of response required.

The Investigations Manager will contact the CASA Executive Manager Safety Regulations, informing him/her of the AIC's intentions with regard to the investigation of an occurrence, specifically if an investigation will be conducted.

If an occurrence is determined to be an accident or a serious incident, the CEO, in consultation with the Investigations Manager, shall assess the magnitude of the tasks and the scope of the investigation as soon as possible, so that an appropriately qualified and experienced investigator can be appointed as the Investigator in Charge (IIC).



With approval from the CEO, the investigation team will be selected and activated, and appropriate resources and expertise will be acquired for the investigation. The IIC, in consultation with the Investigations Manager will determine the size of the investigation team and the initial plan of action.

The AIC policy requires that at least one experienced investigator will be assigned to an on-site investigation to ensure the required level of experience during the on-site phase of the investigation. Office investigations will have the benefit of a number of experienced investigators to assist during the investigation.

An investigator will be appointed by the IIC, (or the Investigations Manager if the IIC has departed to go to the accident site), to contact organisations such as CASA, the operator, maintenance organisations, and PNG ASL, as appropriate to the known circumstances of the accident or incident, to ensure that evidence, including documents and recorded data is secured as soon as possible.

The appointed investigator will provide the appropriate section(s) of the AIC Investigation Checklist to these organisations as soon as possible, for them to complete the relevant information while the on-site or office investigations proceed.

The AIC Duty Investigator will coordinate the notification with other State Investigation Authorities/Agencies, relevant PNG government agencies and other industry organisations, such as search and rescue, police, etc, and ICAO in accordance with *ICAO Annex 13*.

AIC may decide not to investigate

The AIC may decide that an occurrence does not require investigation by the AIC. In accordance with the *CAAct*, the AIC will inform CASA when a notified accident or incident is not being investigated by the AIC.

However, in these cases the AIC may still request a copy of an operator's internal investigation report, when it is complete. This allows the AIC to review its decisions and helps to inform future decision making.

10. The investigation process

Following completion of the initial evidence gathering phase, the wreckage or components of specific interest may be removed to the AIC or other appropriate facilities.



Evidence gathering will continue away from the accident site as the investigation progresses. This can take some considerable time and may include activities such as detailed examination of the wreckage, further interviewing of witnesses, research of specific issues, interpretation of the recorded flight data, consultation with technical experts and component testing at the manufacturer's facilities or in specialist laboratories.

When the relevant facts have been determined this information will be analysed in order to determine the cause(s) of the accident. The factual information, its analysis and the conclusions of the investigation will be documented in the final investigation report.

The report will endeavor to protect the anonymity of persons involved, but not necessarily the organisations. Where appropriate, the report will contain statements of *Safety Action* taken by individuals or organisations and/or *Safety Recommendations* to address issues of safety concern identified during the course of the investigation.

The investigation process may take many months depending on its nature and complexity.

The AIC will issue a *Preliminary Report* within 30 days of the commencement of the investigation. It will contain evidence that has been verified during that period, and may contain statement(s) of Safety Action taken or proposed, and *Safety Recommendations*.

The *Preliminary Report* will be published and becomes a public document.

A draft copy of the AIC's *Final Report* will be sent to the flight crew, the operator, CASA and the States of Registry, the Operator, and States of Design and Manufacture of the airframe and powerplants and any other involved organisation, seeking comment on the draft report. The State(s) of Manufacturer will coordinate with the manufacturers to obtain their comment on the *Draft Report*. If an involved party should seek to have the draft report amended, their comment must be substantiated with evidence.

In accordance with *ICAO Annex 13 Standards*, there will be a 60-day period in which to make any written representations on the contents of the draft report.

Where possible the AIC aims to adopt an inclusive and collaborative approach with other organisations participating in the investigation. This ensures a more robust investigation and means there should be few surprises when the draft report is circulated for comment.

A copy of the final report will be sent to those persons and organisations and to ICAO prior to publication on the AIC web site at: www.aic.gov.pg

11. Safety Recommendations

A *Safety Recommendation* will be made as soon as possible after the AIC determines that action is required in order to address safety issues identified during the course of an investigation. In general, *Safety Recommendations* are brought to the attention of the addressee in advance of being published. A *Safety Recommendation* will be issued in writing, directly with the recipient normally by e-mail if the AIC decides that the *Safety Recommendation* cannot wait for the publication of the final report.

The AIC is not a regulatory authority and therefore, cannot enforce its recommendations. However, in accordance with *Annex 13*, the AIC requests that recipients of AIC *Safety Recommendations* will inform the AIC within 90 days of the issuance of a *Safety Recommendation*, of safety action taken, or proposed, to address the identified safety deficiency.

12. Safety actions

During an investigation it may become apparent that certain safety actions or changes can improve the ongoing safety of an operation or the aviation system.

The development of company initiatives to address safety deficiencies will ensure continued flight safety following an incident or accident. There is no requirement for operators, service providers or manufacturers to wait for the AIC to make a *Safety Recommendation* before making safety improvements. Such safety actions will be reflected in the AIC's reports.

13. Areas not within the scope of the investigation

If the AIC does not comment on an aspect of an organisation's operation, it should not be assumed that the AIC approves of, or condones, a particular operational style or technique. Operators should not use an AIC investigation of one aspect of their operation to demonstrate that another unrelated aspect is safe or appropriate.

14. International context

Most investigations have an international element. *ICAO Annex 13* provides the ‘Standards and Recommended Practices’ to be used for the investigation of aircraft accidents and serious incidents. These protocols, adopted in PNG legislation, direct that an investigation into an aircraft accident or incident will be initiated by the State of Occurrence.

The State of Manufacture of the aircraft or engines, the State of Design, the State of Registry, and the State of the Operator are each entitled to nominate an Accredited Representative to participate in the investigation. Other States which provide expertise to the investigation or have a special interest by virtue of fatalities or serious injuries to its citizens are also entitled to participate in the investigation. Responsibility for the investigation of accidents occurring in international waters falls to the State of Registry.

15. Participation in AIC investigations

In addition to those States entitled to participate in an investigation under the provisions of *ICAO Annex 13*, the AIC may also invite participation from those organisations that can provide the necessary technical assistance to the investigation. These may include the operator, service provider, manufacturers of the aircraft, systems and powerplants; the regulatory bodies; or other relevant technical specialists. Representatives from PNG-based operators and service providers may be appointed as Advisors reporting directly to the IIC. Representatives from foreign operators will work in support of their State’s Accredited Representative.

Section 242 of the *CAAct* provides for the appointment of Expert Assessors to provide specialist expertise and advice to assist the AIC’s investigation.

16. Overseas investigations

Reporting

The initial response to an accident or serious incident, occurring to a PNG registered aircraft being operated in another State, is the responsibility of the accident investigation authority of the State of Occurrence. Pilots and Operators must provide a notification of the occurrence in accordance with the local procedures and laws in the State of Occurrence. The following ICAO website link provides contact for many overseas accident investigation authorities:

<http://www.icao.int/safety/aia>

In addition, pilots, operators, and service providers are required to also inform the CASA PNG and desirably the AIC *with a minimum of delay and by the most suitable and quickest means available*, once the local reporting obligations in the State of Occurrence have been met.

The AIC cannot assist unless it has been notified of the occurrence. The AIC will be able to assist you in notifying the State of Occurrence if you have any difficulty notifying that accident investigation authority of an accident or incident.

Participation

The AIC will participate in investigations of accidents that occur outside PNG when the operator of the aircraft is based in PNG; and/or when the aircraft is registered in PNG. In these cases the AIC will appoint an Accredited Representative and may invite the operator to nominate an Advisor(s) to the PNG Accredited Representative.

While the majority of investigations in ICAO signatory States follow the protocols prescribed in *Annex 13*, the manner in which the investigation is conducted may vary from State to State. In some countries, the legal system may require that a separate judicial investigation takes place; this may take precedence over the *Annex 13* safety investigation.

17. The role of the Advisor

The role of the Advisor is to provide technical assistance to the IIC and/or the Accredited Representative to whom they are affiliated, in order to assist in developing a complete and accurate factual record. Where necessary the IIC will provide guidance for Accredited Representatives and Advisors with respect to the scope and requirements of the investigation. The Accredited Representative reports to the IIC.

The AIC acknowledges that Advisors may also wish to represent the interests of their organisation and while it is appropriate that they do so, the potential for a conflict of interest may arise. Aircraft operators and manufacturers are understandably eager for information, especially during the early stages of an investigation, and it is important that they are kept informed and have timely access to facts regarding the accident or incident that will facilitate prompt preventative and / or corrective action.

However, in order not to jeopardise the investigation and to ensure that only validated information is provided, the Advisor is not permitted to release any information from the investigation to their organisation, to the media, or into the public domain without prior approval from the IIC. Failure to observe this or to act in a manner considered prejudicial to the investigation may result in exclusion from the investigation.

The operator / manufacturer should be aware of the demands on the Advisors and ensure that appropriate provisions and communications channels are stipulated in their emergency planning documentation.

Appendix D contains the AIC's proforma *Declaration of Conflict of Interest*. This document, which must be signed by all parties joining the AIC's investigation, lists the permissions and obligations and requires the Party to declare known or perceived conflict(s) of interest.

The following persons will not be permitted to participate in an AIC investigation because of real and perceived conflict(s) of interest:

- Any person representing an organisation that has interests beyond the safety objective of the investigation.
- Any person occupying a legal position.
- Any person representing claimants or insurers.

18. Operator emergency planning

It may be appropriate for operators to identify in advance those staff who are likely to be nominated as Advisors in the event of an accident. Key details such as copies of their passports, vaccinations, accreditations etc., should be kept on file to facilitate security/visa requirements and accident site access if participating in an investigation.

The operator should provide advance notice of contact details for key safety personnel within their organisation to the AIC by email to infor@aic.gov.pg and update these as required. Often the AIC is informed of accidents or incidents by third parties and it is important to be able to get immediate clarification from the operator's Safety Manager or equivalent.

By prior arrangement, an operator or service provider may notify the AIC of a simulated accident scenario in the context of an emergency planning exercise. Operators and service providers should notify the AIC Duty Investigator, in advance, via the Duty Officer contact number.

Many operators have a provision in their emergency plans to deploy a relief aircraft to accidents locations occurring overseas. It may be possible for the AIC team to travel on the relief aircraft. Depending on the nature and location of the accident, this may be the most practical means of travel and would allow briefing and co-ordination between the AIC team and the operator's Advisors.

Desirably this can be coordinated at the time of notification. However, the AIC will not delay deployment to travel on a relief aircraft if more expedient means are available.

19. AIC interface with an operator or service provider during an investigation

Access to operator's staff

AIC Investigators will expect to contact the staff of the operator and/or service provider following an accident or serious incident. This will include interviews with the crew and may also involve maintainers, support staff and management. Depending on the circumstances, these could take place near the location of the occurrence, at the AIC HQ in Port Moresby, the premises of the operator or service provider, or in any mutually convenient suitable location.

Operators and service providers need to consider the likely impact on their operations and ensure that safety critical staff are fit to return to work. For shift workers, the AIC may require a copy of the individual's roster, either as part of the investigation or simply to ensure that pre-work rest is not inadvertently compromised. The AIC always reserves the right to talk with individuals without reference to their employer.

Interviews

The sole purpose of an interview is to provide the AIC Investigator with a record of what a witness saw or heard of the accident / incident, or knows of the events leading up to it. The details they give, whether in a written statement or verbally, will only be used by the AIC in its investigation.

Employees may not be accompanied by anyone who is there to represent the interests of the company (for example a manager or company legal advisor). The AIC's obligation to maintain confidentiality over the contents of statements obtained from witnesses means that it will normally exclude such persons from the interview. However, interviewees may if they wish, have a colleague / friend present for emotional support subject to AIC approval. Such persons are not permitted to answer questions or make statements on behalf of the interviewee.

Access to documents

AIC Investigators may require access to various documents and records during the course of an investigation. These may include, but are not limited to:

- operating manuals
- training records
- rosters
- maintenance records and procedures
- engineering drawings
- safety database records
- historic FDM data
- minutes of flight safety meetings
- SMS manuals
- audit reports
- ATC logs.

Operators should take all necessary steps to make this information available without delay upon request.

The AIC acknowledge that some information/data may be considered proprietary/commercial-in-confidence. Such information will be for safety investigation purposes and will not be made available to other commercial entities participating in the investigation without permission from the originator.

Access to facilities

AIC Investigators may on occasion require access to maintenance areas, other similarly equipped aircraft, flight crew training facilities, landside and airside terminal facilities, flight crew briefing areas, aircraft flight decks and office facilities.

For lengthy investigations the operator may also consider the provision of appropriate hangar / office accommodation for the AIC team and on occasions the AIC Investigators may need to observe a routine flight, simulator training session or maintenance procedure being performed in order to assist in understanding the operational context of the incident or accident.

Passenger questionnaire

Operators should be aware that it is important for the AIC to understand passenger behaviour in accidents or serious incidents such as an emergency evacuation. The AIC has a passenger questionnaire to enable investigators to gain an understanding of the circumstances of the accident including the evacuation from the aircraft following an accident.

Operators may assist the AIC to distribute the questionnaire to passengers following an accident or relevant serious incident.

The AIC recommends that a copy of the AIC questionnaire should be included in operators' emergency planning documents.

The questionnaire is available on the AIC website www.aic.gov.pg.

20. Internal investigations conducted by operators and service providers

Operators and service providers are responsible for managing their ongoing safety and operational risk and in so doing will conduct a parallel internal safety investigation.

However, it is important that the AIC investigation or evidential chain is not compromised. Actions as simple as taking a fuel sample, removing a component or running a system test may inadvertently compromise evidence.

Note: In accordance with Section 246 of the CAAAct:

“When an accident occurs to an aircraft in PNG, the aircraft (including the contents thereof) shall be deemed to be in the custody of the Commission (AIC) for such period as the Commission considers necessary for the purposes of an accident inquiry, and shall not be removed or otherwise interfered with except with the permission of the Chief Commissioner, Deputy Chief Commissioner or the Chief Executive.”

Exceptions apply for the extrication of persons, animals, and valuables which also allows for the work of the Coroner and Police assisting the Coroner.

Until the aircraft or other system(s) or equipment are formally released back to the operator or service provider, any work in support of operator and service provider internal investigation must be approved in advance by the IIC.

Additionally, it is desirable that operators and Service Providers do not conduct their own interviews of the flight crew, cabin crew or maintenance personnel, or Air Traffic Controllers and Flight Service Officers before the AIC have interviewed them.

Operators may be granted supervised access to physical evidence, such as the aircraft/wreckage or components and will obviously have access to their own staff and other resources such as Quick Access Recorder (QAR) data as part of an internal investigation.

Operators will not be granted access to cockpit voice or image recorder data (where fitted) or witness statements taken by the AIC.

21. Media relations



Media statements issued by the AIC will normally be made by the Chief Commissioner or Chief Executive Officer, but may be delegated to the Investigations Manager. The IIC may be authorised on a case by case basis to make a brief media statement at the accident site.

Such briefing will be limited to evidence-based facts that are approved by AIC management for public release. This will normally be in order to give the TV media a “talking head” with the backdrop of the accident site to assist their factual coverage.

Operators, Service Providers, and manufacturers are responsible for their own media relations following an accident or serious incident, It is recognised that these organisations may wish to release press statements, participate in press briefings or conduct TV / radio interviews.

The AIC has no control over such activities, but where possible the release of information should be coordinated and prior agreement reached with the IIC or AIC Management.

During an investigation the AIC may provide the Operator, Service Provider or manufacturer with access to information to ensure the ongoing safety of their operation. Public release of information provided in this way, without the explicit approval of the IIC, is not permitted and may result in exclusion from the investigation.

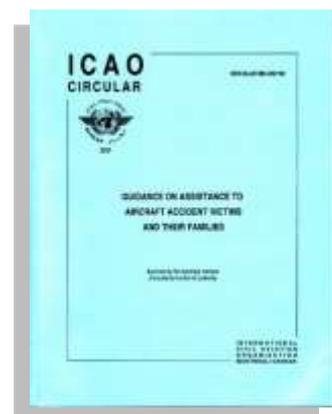
Note: The AIC is the only organisation that will issue statements on the status and progress of an AIC investigation.

22. Passenger assistance

Aircraft Operators are responsible for ensuring they have an appropriate and effective ‘Victim Assistance Plan’ that can be implemented in the event of an accident. Plans should include a point of contact for relatives and survivors seeking assistance.

The AIC can, upon request, place the relevant contact numbers / website details onto its own website to facilitate contact with the operator following an accident.

The AIC recommends that Operators familiarise themselves with the requirements *ICAO Circular 285-AN/166, Guidance on assistance to aircraft accident victims and their families.*



In 2005, family assistance was included in *Annex 9 Facilitation*.

The AIC will provide status and progress details of its investigation normally at the time of issuing the Preliminary Report; within 30 days of the date of the accident.

23. Flight Data and Cockpit Voice Recorders

The PNG Civil Aviation Rules Part 125, 135, and 136 provide the requirements for the fitment of serviceable Flight Data and Cockpit Voice Recorders in specified aeroplanes and helicopters. PNG CAR Transition Rules CAR Part 20.105 refers to Part 125, Part 20.109 refers to Part 135, and Part 20.111 refers to Part 136. In addition, many large air transport aircraft are also equipped with a maintenance recorder (typically referred to as a Quick Access Recorder (QAR)) that is not crash protected.



The AIC aims to secure the flight recorders as quickly as possible following an accident or serious incident. The Pilots or operator must ensure that power supply to the recorders is interrupted as soon as possible after the accident or serious incident to ensure minimal loss of recorded information due to overwriting. Unless permission has been granted by the AIC, the flight recorders must not be removed from the aircraft and under no circumstances should an operator attempt to download the FDR or CVR.



The AIC will download the data from the recorders “on-wing”, meaning that the download is conducted with the recorders left in the aircraft and using the aircraft’s electrical power. This process is used by the AIC whenever possible to minimise aircraft down time if the recorders had to be taken to the AIC Laboratory.

It is normal practice for the AIC to recover both the FDR and CVR recorded information and obtain the media disk / card from the QAR.

In the event of a damaged recorder or damaged or disrupted power supply from the aircraft to the recorder, “on-wing” data recovery may not be possible.



In addition to the traditional sources of data such as flight recorders, there are also likely to be other items of avionics which contain vital information such as GPWS or TCAS etc. Air Traffic Control and Flight Service Unit recorded information are examples of recorded information likely to be quarantined by the AIC. The AIC may request that these items be impounded and the scope of such a request will depend upon the circumstances of the occurrence.

Some aircraft are equipped to wirelessly transmit data to a ground station. This data could be from a QAR-type device, ACARS or similar system. Most operators in PNG use a tracking system such as the commercially available *V2 Tracker*, which is a very small GPS tracker capable of logging GPS data to a cloud server at configurable intervals using hypertext transfer protocol (HTTP).

The Global Positioning System (GPS) is a global navigation satellite system that provides geolocation and time information to a GPS receiver anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. Obstacles such as mountains and buildings block the relatively weak GPS signals.

If an operator has received such data wirelessly from any of these systems from an aircraft involved in an accident or serious incident, they should ensure that the data is suitably secured and notify the AIC.

If required, the AIC may provide a copy of the data from a FDR, QAR or other avionics at an early stage to the operator, Accredited Representative for use by their Advisor which would include the aircraft manufacturer.

Note: This does not apply to the CVR, the recordings of which are protected from disclosure by the AIC under PNG legislation and are classified as restricted information in accordance with *ICAO Annex 13*. Any data provided shall be treated as confidential by the operator, Accredited Representative and Advisers and must not be distributed further without the express written consent of the AIC.

Preservation of flight recordings

Operators and PNG Air Services Limited must have robust procedures in place that minimise the loss of information from the FDR and CVR, and ATS recorder information respectively following an accident or serious incident.

The operator must advise the AIC immediately if access to the aircraft, by personnel suitably qualified to secure the FDR and CVR recordings, is prevented by any other agency prior to the arrival of the AIC.

The FDR will typically stop recording when the aircraft engines have been shut down. However, for many aircraft, the CVR will continue to operate whenever the aircraft's electrical system is powered.

Because of its relatively short recording duration of either the last 30 or 120 minutes (dependent upon model), it is vital to remove electrical power from the CVR to avoid relevant parts of its recording being overwritten.

If the flight recorder circuit breakers have been pulled (confirmation that this has been done is usually one of the first requests made by the AIC upon being notified of an occurrence), it is also important to placard the circuit breakers “DO NOT ACTIVATE” and also state that action in the aircraft’s Technical Log so that any follow-up maintenance activity does not inadvertently reinstate the circuit breakers and thus reactivate the CVR.

On some aircraft types, the flight recorder circuit breakers are not located in the cockpit. Procedures should reflect this and detail how the surviving flight crew should prevent the recordings being overwritten, such as electrically powering down the aircraft until circuit breakers can be accessed by maintenance staff.

Operators should ensure that these procedures can be enforced across their network, including at destinations where line maintenance activities may be delegated to third party providers.

FDR documentation requirements

The FDR records binary data which needs to be decoded. Using a ground replay system, the binary data can be converted to engineering units (knots, feet etc.) by referencing a detailed document specific to the aircraft installation. The generic name for this document is the *Data Frame Layout* (DFL).

PNG legislation requires an operator to keep the DFL documentation and CASA PNG requires operators to demonstrate that they hold a copy of the DFL documentation at the time of application for a Certificate of Airworthiness.

Operators are also required by CASA PNG to make the DFL available to support the continued airworthiness of an aircraft, in particular the annual readout of the FDR, and to support any accident or serious incident investigation carried out by the AIC.

The AIC has built a database of DFL information for most aircraft in the PNG fleet, but in the event that a specific aircraft’s DFL is not in the AIC database, one of the first documents to be requested by the AIC Flight Recorder Investigator will be the DFL for the aircraft. For aircraft equipped with a QAR, the AIC will also seek to obtain DFL information from the operator.

Return of recorders

If the data download has not been able to be accomplished “on wing”, the AIC will take all necessary and reasonable steps to return the flight recorders (or other avionics) expeditiously. However, in some cases an aircraft may be released back to the operator by the AIC before the flight recorders are ready to be released.

Also, if the recorders were damaged during the accident they will not be able to be used in an aircraft before repair action, which is the responsibility of the Operator. Operators are encouraged to have appropriate spares to cover such contingencies.

Additionally, Operators should be aware that because the recorders have been removed from an aircraft they will require a serviceability release certificate from an approved avionics maintenance facility before they may be reinstalled. The AIC cannot provide such a release certificate.

CASA documentation

The PNG Civil Aviation Rules define the requirements for routine readouts as well as providing other useful advice on the subject of flight recorders.

24. Police and judicial investigations

The AIC will normally be the lead agency investigating aircraft accidents and incidents in PNG. However, following a fatal accident it is highly likely that the police will assist the Coroner. The AIC will not impede the Police and Coroner’s work to recover the bodies of victims, but will ask the Police and Coroner to document their removal and any post-accident disruption of the wreckage to effect the removal.

The Coroner’s investigation will be separate from the AIC investigation. The AIC will not provide the police or any third party with copies of witness statements or cockpit voice or image recordings. However, the AIC can obtain Police witness statements for any specific investigation.

Upon application to a Court, a Magistrate may decide that it is in the public interest to release this information for certain purposes. In such applications the AIC will remind the court that if such information is made public it may in the future no longer be openly disclosed to investigators and that lack of access to such information would impede the investigation process and seriously affect flight safety.

Operators therefore need to be aware that there may be several separate investigations proceeding at the same time but with different rules and objectives. To ensure the separation of the AIC’s no-blame safety investigation from any judicial or administrative process that would apportion blame and/or liability, this may unavoidably result in operator’s staff being interviewed on multiple occasions by different organisations under different procedures.

25. Civil Aviation Regulator

The Civil Aviation Safety Authority of PNG (CASA) regulates commercial aviation within the PNG through the Civil Aviation Rules. The AIC maintains communication links with CASA and has a Memorandum of Understanding on cooperation with CASA. The MOU takes account of the distinctly separate investigation requirements of both organisations, while working to the same goal of aviation safety.

The AIC may invite CASA to send an Advisor to participate in an AIC investigation. In doing so the AIC must be satisfied that no conflict of interest will arise from the appointment of the CASA Advisor and will place the Advisor under specific conditions of confidence. The Advisor will not be permitted access to cockpit voice or image recorder data.

CASA is obligated to provide the AIC with information to support the investigation. This may include, but is not limited to, certification data, occurrence reporting database information, personal licensing information, audit/surveillance reports. The AIC will protect this data in accordance with the relevant legislation.

During an investigation the AIC may need to provide CASA with pertinent factual information that is not classified as restricted information to allow CASA to fulfil its safety functions. Cockpit voice and image recordings are not released. Should CASA require data or information that is restricted information, it must obtain it from their own investigative sources separate from the AIC.

26. Accident site safety

There are numerous hazards at aircraft accident sites and the safety of personnel working on such sites is paramount. Those involved in the examination, documentation and recovery of aircraft wreckage may be exposed to risks from hazards such as dangerous cargo, flammable or toxic materials and vapours, sharp or heavy objects, pressurised equipment, biological hazards, airborne hazards, adverse terrain and adverse climatic conditions.



In general, responsibility for the overall safety on site will reside with the AIC. However, when other agencies such as the Police, Fire Services, Airport Operator etc. are present the AIC's IIC will consult with those experts. The IIC and / or a designated AIC site safety co-ordinator will be responsible for conducting a risk assessment of the accident site to identify possible hazards and determine the level of risk. Based on the nature and extent of the identified hazards the AIC will employ appropriate control measures and provide a briefing for all persons working on the site.

However, this does not detract from each organisation's own obligations towards its personnel who are working on accident sites. As such, it is essential that representatives from the Operator, Service Provider, Accredited Representative and Advisers who may be required to participate in such on-site investigations are suitably trained and equipped to deal with accident site hazards. These elements should be fundamental considerations in an operator's emergency planning.

The AIC will restrict access to hazardous accident sites. Only supervised access will be permitted unless the personnel seeking access can show evidence of having undergone site hazard and bloodborne pathogen awareness training. The AIC conducts this training on a needs basis at its Port Moresby Training Room.

Operators are required to inform the AIC at the earliest possible opportunity following an accident of any dangerous goods or hazardous cargo known to be on board an aircraft involved in an accident. In addition, some aircraft systems represent specific hazards on an accident site, particularly stored pressure vessels such as oxygen bottles, hydraulic accumulators etc. This information is often provided by aircraft manufacturers on a diagram specifically aimed at advising airport fire services of particular aircraft hazards.

It is recommended that operators have this information readily available and provide it to the AIC at the earliest opportunity following notification of an accident or serious incident.

27. Recovery of wreckage

Recovery of the wreckage for ongoing accident investigation purposes will normally be co-ordinated by the AIC. On occasions it may be necessary to enlist assistance from other organisations such as the PNG Defence Force, specialist aircraft recovery contractors, or the aircraft operator. The nature of the recovery operation may vary greatly depending on the size of the aircraft, the location of the accident (on-airport or off-airport) and the degree of disruption to the aircraft.

Where assistance is provided by the operator in the form of personnel, equipment, resources or hangar facilities, the aircraft or wreckage remains in the custody of the AIC and access to it will be strictly by permission of the AIC. This is necessary to avoid any interventions which may unintentionally destroy evidence.



Where an aircraft is deemed by the insurer or operator to be salvageable, an operator may wish to conduct the recovery operation with appropriately skilled personnel to minimise further secondary damage. Such steps must not be taken without prior agreement of the IIC, and the AIC will continue to observe the process to ensure the preservation of evidence.

Components and flight recorders removed by the AIC from otherwise serviceable aircraft will be retained as long as necessary for the purposes of the investigation. While the AIC will endeavour to return these as soon as possible, operators should be aware of this and make appropriate arrangements to replace them if the aircraft is to be returned to service before completion of the investigation.

The legislation provides for the testing of aircraft systems and components during an investigation, even to the point of destruction. While this is avoided whenever possible, nevertheless it remains an option in the investigation process.

Wreckage not required for AIC examination, or if the examination has been completed by the AIC at the accident site and the items are no longer required by the AIC will be returned to the owner at the accident site. The aircraft is then the responsibility of the owner, the operating company or the insurers. Personal effects recovered from aircraft wreckage if not able to be given to the owner at the site, will be handed to the police for safe custody. In other cases, this process will be coordinated with the police, airport owner/operator and aircraft operator as appropriate.

In all cases, liabilities and restoration work arising from the pollution or damage to land and associated vegetation, water course, airport facilities, buildings, utilities etc., caused by an aircraft accident will be the responsibility of the operator through their insurers.

28. Wreckage recovery from the sea



Locating aircraft wreckage at sea and its subsequent recovery from the sea bed can be a very lengthy and expensive operation with costs varying depending on the size of the aircraft, the depth of water, the location, the weather and sea conditions etc.

The AIC will work with other agencies including the National Maritime Safety Authority (MSA), the PNG Defence Force to source appropriate specialist equipment for locating submerged wreckage. For large scale sea-bed searches organisations such as commercial salvage operators that have dedicated search and recovery capabilities may have to be contracted.

The AIC will generally seek to recover submerged aircraft wreckage in PNG waters when it is considered necessary for the investigation, in order to establish the cause(s) and contributing factors of an accident and when it is practical to do so. However, in some circumstances the AIC will contact the aircraft operator's insurers and the State of Registry with a view to seeking an agreement for sharing the costs of the recovery.

The AIC will make it clear to the operator of an aircraft that has crashed in or near PNG waters and sunk that the AIC will monitor the salvage inside PNG Territorial waters and when recovered the wreckage will be in the custody of the AIC unless otherwise released to the owner by the AIC. Outside PNG Territorial waters the responsibility rests with the State of Registration, although for accidents near PNG territory, the AIC would assist. Operators are strongly discouraged from taking unilateral action, though both the operator and the manufacturer may send an observer on board the recovery vessel if there is space and accommodation. This is seen as prudent since the manufacturer's representative particularly can be a ready source of aircraft type information to assist the AIC.



If the aircraft has remained afloat, the operator may wish to salvage their property with a view to refurbishment, in which case the AIC will render assistance as appropriate and provide advice to ensure the preservation of evidence for its investigation.

In some cases, the AIC may seek to recover only the Flight Data and Cockpit Voice Recorders and relevant parts of the aircraft wreckage. This may occur when recovery of all of the aircraft wreckage is impractical. It will then be the responsibility of the aircraft owner or the aircraft's insurers to effect a recovery if it is deemed appropriate for their purposes or if the wreckage poses a continual hazard. In such a case the NMSA must be informed in case it poses an ongoing threat to shipping.

Recovery of aircraft wreckage from international or oceanic waters brings an additional level of complexity.



A regional example is the AdamAir Boeing 737 that crashed into the ocean off Sulawesi. The aircraft was not recovered but the flight recorders were located on the seabed at a depth of more than 2,000 metres and were recovered. The cost of the recovery of the flight recorders was in excess of USD 4.6m shared by the Indonesian Government and the Operator.

Another recent example was Air France Flight 447, that disappeared into the Atlantic Ocean while en-route from Rio de Janeiro to Paris. It took four separate search missions and almost two years to locate the aircraft wreckage on the ocean floor following its disappearance.

Recovery of the flight recorders and wreckage from water almost 4,000 metres deep took a further eight weeks. The search and recovery operations amounted to many millions of US dollars and cost sharing was unavoidable.

Appendix A: Extracts from ICAO Annex 13 to the Convention on International Civil Aviation

Some of the following extracts from *ICAO Annex 13, Eleventh Edition* are referenced in the *PNG Civil Aviation Act 2000 (as amended)*

Definitions

Accident. An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

- a) a person is fatally or seriously injured as a result of:
 - being in the aircraft, or
 - direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
 - direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

- b) the aircraft sustains damage or structural failure which:
 - adversely affects the structural strength, performance or flight characteristics of the aircraft, and
 - would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windcreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or

- c) the aircraft is missing or is completely inaccessible.

Note 1 — For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified, by ICAO, as a fatal injury.

Note 2 — An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Serious injury. An injury which is sustained by a person in an accident and which:

- a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
- b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
- c) involves lacerations which cause severe hemorrhage, nerve, muscle or tendon damage; or
- d) involves injury to any internal organ; or
- e) involves second or third-degree burns, or any burns affecting more than 5 per cent of the body surface; or
- f) involves verified exposure to infectious substances or injurious radiation.

Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Causes. Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident. The identification of causes does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

Contributing factors. Actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

Safety recommendation. A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, safety recommendations may result from diverse sources, including safety studies.

Serious incident. An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down.

Note 1 — The difference between an accident and a serious incident lies only in the result.

List of examples of serious incidents³

The incidents listed are typical examples of incidents that are likely to be serious incidents. **The list is not exhaustive and only serves as guidance to the definition of serious incident.**

- Near collisions requiring an avoidance manoeuvre to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate.
- Collisions not classified as accidents.
- Controlled flight into terrain only marginally avoided.
- Aborted take-offs on a closed or engaged runway, on a taxiway or unassigned runway.
- Take-offs from a closed or engaged runway, from a taxiway or unassigned runway.
- Landings or attempted landings on a closed or engaged runway, on a taxiway or unassigned runway.
- Gross failures to achieve predicted performance during take-off or initial climb.
- Fires and/or smoke in the cockpit, in the passenger compartment, in cargo compartments or engine fires, even though such fires were extinguished by the use of extinguishing agents.
- Events requiring the emergency use of oxygen by the flight crew.
- Aircraft structural failures or engine disintegrations, including uncontained turbine engine failures, not classified as an accident.
- Multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft. Flight crew incapacitation in flight.
- Fuel quantity level or distribution situations requiring the declaration of an emergency by the pilot, such as insufficient fuel, fuel exhaustion, fuel starvation, or inability to use all usable fuel on board.
- Runway incursions classified with severity A. The *Manual on the Prevention of Runway Incursions* (Doc 9870) contains information on the severity classifications.
- Take-off or landing incidents. Incidents such as under-shooting, overrunning or running off the side of runways.
- System failures, weather phenomena, operations outside the approved flight envelope or other occurrences which caused or could have caused difficulties controlling the aircraft.
- Failures of more than one system in a redundancy system mandatory for flight guidance and navigation.
- The unintentional or, as an emergency measure, the intentional release of a slung load or any other load carried external to the aircraft.

Note: Reference to taxiways excludes authorised operations by helicopters.

³ ICAO Annex 13 Attachment C

Appendix B: Roles of the investigation team members

The **Investigations Manager** has oversight responsibility for all investigations and related activities and is responsible to the CEO for the quality and timeliness of the investigation. Public statements about the status of the investigation that are not handled by the Board or CEO are normally delegated to and made by the Investigations Manager. The Investigations Manager reports to the Chief Executive Officer, who in turn reports to the AIC Board.

The **Investigator-in-Charge (IIC)**, reports to the Investigations Manager. He/she will manage the operations of a specific investigation and coordinate investigative activities between the various investigators/teams assigned to the investigation. The IIC, assisted by the Investigations Manager, will be the focal point for Accredited Representatives from other States and for Advisors. The IIC will prepare all draft reports for review by the Investigations Manager.

The **Operations Investigator**, normally a pilot, will if possible, interview the pilots, cabin crew, passengers and other relevant witnesses with a view to determining the sequence of events that led to the accident or serious incident. They examine for example, flying procedures and techniques; human factors; aircraft performance; weather; airports; air traffic control and witness information.

The **Engineering Investigator**, is responsible for the examination of the aircraft or the wreckage. They will photograph and record all the evidence from the accident site and later examine the aircraft technical records, the aircraft design; airworthiness; systems; engines; structure; failure and fault analysis; maintenance procedures, records and documentation etc. They will also liaise closely with the maintenance organisation. They may arrange for the aircraft wreckage, components and other relevant material evidence to be removed and transported to the AIC Office in Port Moresby, or some other secure area, where they can carry out further examination and testing.

The **Flight Recorder Investigator** will download data/information “on wing” if the recorders are not damaged and power supply from the aircraft is available. If not they remove the FDR and CVR from the aircraft for replay and analysis at the AIC Laboratory in Port Moresby. They will also examine other sources of recorded information. Information from the CVR is confidential to the investigation team and is never released. The crew, however, are encouraged to visit the AIC, where possible, to listen to the recording. General flight parameters such as airspeed, altitude and heading as well as control inputs and detailed system data are recorded on the FDR. This information may be supplied to the operator and aircraft manufacturer to assist in the investigation.

The **Air Traffic Management Investigator** will obtain ATS recorded information and transcribe air traffic services communications and analyses ATS log entries and ATS manuals and other relevant documents. He/she assists the Operations Investigator and the IIC investigating airport issues and with transcribing interview records and provides ATS analysis assistance.

Appendix C: AIC_F018 Formal Request for Interview or Production of Evidence

	<i>Civil Aviation Act 2000 (as amended) Part XIII</i>	
Accident Investigation Commission Request for Interview and/or Relevant Material		
<i>Form: AIC_F018</i>		
AIC Investigation No. <input type="text"/>		
The Accident Investigation Commission is conducting an investigation into the following aircraft accident/serious incident.		
Investigation title and/or other description <input style="width: 100%; height: 50px;" type="text"/>		
To	Name <input style="width: 100%; height: 40px;" type="text"/>	
	Organisation <input style="width: 100%; height: 40px;" type="text"/>	
The AIC conducts investigations solely for the purpose of enhancing aviation safety. The object of an investigation is to determine the circumstances of the occurrence and to prevent similar events occurring in the future. It is not the object of an investigation to determine blame or liability.		
In this context, you are required to attend an interview and/or produce relevant material under section 245 of the <i>Civil Aviation Act 2000 (as amended), Part XIII, and the Commissions of Inquiry Act 1951.</i> (see page 2 of this form)		
Attend an interview (<i>delete if not applicable</i>) Location, date and time of interview <input style="width: 100%; height: 30px;" type="text"/>		
Produce relevant material (<i>delete if not applicable</i>) Description of material, date required and any special instructions <input style="width: 100%; height: 150px;" type="text"/>		
Thank you for your cooperation.		
AIC Chief Executive Officer/Delegate Signature of Chief Executive Officer/Delegate <input style="width: 100%; height: 60px;" type="text"/>	Name of Chief Executive Officer/Delegate <input style="width: 100%; height: 30px;" type="text"/> Date <input style="width: 50%; height: 30px;" type="text"/> Phone <input style="width: 50%; height: 30px;" type="text"/>	
ACCIDENT INVESTIGATION COMMISSION	1	<i>Policy and Procedures Manual, Part E, Form AIC_F018 Third Edition 30 September 2017</i>



Civil Aviation Act 2000 (as amended), Part XIII

Section 245 of the Act specifies that:

"(1) For the purposes of carrying out its functions and duties under this Act, the Commission shall have the same powers as are conferred on a Commission of Inquiry by the Commissions of Inquiry Act 1951 (Chapter 31) and subject to the provisions of this Part, all the provisions of that Act, shall apply accordingly.

Commissions of Inquiry Act 1951

9. PENALTY FOR FAILING TO ATTEND OR PRODUCE DOCUMENTS.

(1) A person served with a summons to attend the Commission, whether the summons is served personally or by being left at his usual place of abode, who fails, without reasonable excuse—

- (a) to attend the Commission; or
 - (b) to produce any document, book or writing in his custody or control which he is required by the summons to produce,
- is guilty of an offence.

Penalty: ²A fine not exceeding K5,000.00 or imprisonment for a term not exceeding two years, or both.

(2) It is a defence to a prosecution under this section for failing without reasonable excuse to produce any document, book, or writing, if the defendant proves that the document, book or writing is not relevant to the inquiry.

10. PENALTY FOR REFUSING TO BE SWORN OR TO GIVE EVIDENCE.

A person appearing as a witness before the Commission who—

- (a) refuses to be sworn; or
 - (b) refuses to make an affirmation; or
 - (c) refuses to answer any questions relevant to the inquiry put to him by a Commissioner; or
 - (d) leaves the Commission without the permission of the Commissioners,
- is guilty of an offence.

Penalty: ³A fine not exceeding K5,000.00 or imprisonment for a term not exceeding two years, or both.

10A. GIVING FALSE EVIDENCE.

⁴A person appearing as a witness before a Commission who, having been sworn, gives false evidence, is guilty of an offence.

Penalty: Imprisonment for a term not exceeding 14 years.

13. STATEMENTS BY WITNESS NOT ADMISSIBLE IN EVIDENCE AGAINST HIM.

A statement or disclosure made by a witness in answer to a question put to him by a Commission or by a Commissioner is not (except in proceedings for an offence against this Act) admissible in evidence against him in any civil or criminal proceedings.

²Section 9 Penalty clause amended by No 7 of 2000.

³Section 10 Penalty clause amended by No 7 of 2000.

⁴Section 10A inserted by *Commissions of Inquiry (Amendment) Act 1989*, s1.

Appendix D: AIC_F044 Declaration of Conflict of Interest



Civil Aviation Act 2010 (as amended), Part XIII

Accident Investigation Commission Declaration of Conflict of Interest

Form: AIC_F044

AIC Investigation No.

The AIC recognises that persons with technical and/or specialist expertise may need to be called upon from external organisations to assist this AIC's investigation, and that it may be unavoidable for such persons to have a conflict of interest, particularly due to their relationship with, and obligations to, their employer organisation. Conflict of interest situations include, but are not limited to, having the potential to undermine the person's impartiality because of a clash between the person's employe[er]'s interests and the professional interest(s) of aviation safety. It also includes when a person's responsibilities/obligations to their employer or State organisation/authority, limit the person's ability to discharge his/her responsibility to the AIC. Accordingly, such conflict(s) of interest must be managed. The details of legislative rights and obligations, and *Terms and Conditions* in this form seek to provide a framework for managing such conflict(s) of interest; real or perceived.

Declaration

I hereby declare the following conflict(s) of interest that, if not managed, may compromise or impeded the integrity and/or conduct of the above listed AIC investigation.

- Furthermore, I will ensure that any subsequent perceived or real conflict of interest arising during my appointment to this AIC investigation, will immediately be brought to the attention of the investigator-in-charge or his/her representative, in order for them to be addressed and appropriately managed.
- I understand that if a conflict of interest related to my appointment should be found, of which I could reasonably have been expected to be aware, and I have not informed the investigator in charge or his/her representative, both verbally and in writing, that such omission(s) may be grounds to remove me from any further participation in the investigation.
- I confirm that I have received a briefing from the AIC on my obligations and rights, and the requirements of the relevant sections of the *Civil Aviation Act 2010 (as amended), Part XIII, the Commissions of Inquiry Act 1951 (as amended), Section 12, Preservation of Secrecy*, and the *AIC Policy and Procedures*, and have informed my organisation of these obligations.
- I confirm that I understand the PNG legislative obligations, and rights and requirements of the above-mentioned documents, and that I understand the *Terms and Conditions* at page 3 of this form.

ACCIDENT INVESTIGATION COMMISSION

Policy and Procedures Manual, Part E, Form AIC_F044
Second Edition 30 September 2015

92-A



Civil Aviation Act 2010 (as amended), Part XIII
Accident Investigation Commission
Declaration of Conflict of Interest

Form: AIC_F044

- In order to appropriately and adequately manage the conflict(s) of interest listed above, I have obtained my organisation's consent to submit completely to the above-mentioned requirements, and those additional *Terms and Conditions* at page 3 of this form, and all directions/instructions of the Investigator in Charge, or his/her representative.
- I understand that I will not be permitted to participate in any capacity in this AIC investigation unless I sign this statement of compliance.

By signing this form, I give my solemn declare that I will abide by the above-mentioned PNG legislative requirements and the *Terms and Conditions* listed on page 3.

Name of Expert Assessor

Address

Signature

Name of Witness

Signature

Organisation

Phone

Fax

Email

Date

Organisation

Date

Please submit the signed form to the AIC Investigator in Charge, or return a signed copy of this form to the Investigator in Charge at the AIC

PO Box 1709
 Boroko 111, NCD, Papua New Guinea

Phone

Fax

Email

ACCIDENT INVESTIGATION COMMISSION

Policy and Procedures Manual, Part E, Form AIC_F044
 Second Edition 30 September 2015



Civil Aviation Act 2010 (as amended), Part XIII
Accident Investigation Commission
Declaration of Conflict of Interest

Form: AIC_F044

Terms and Conditions

In accepting the Accident Investigation Commission's (AIC) invitation to participate in the above listed AIC investigation, the nominated person confirms that he/she has received a briefing on his/her obligations and rights, and agrees to abide by the requirements of the *Civil Aviation Act 2010 (as amended), Part XIII, and the Commissions of Inquiry Act 1951 (as amended), Section 12, Preservation of Secrecy*, the relevant AIC Policy and Procedures, and the directions of the Investigator in Charge. The nominated person must solemnly declare that he/she has no known conflict(s) of interest that would directly, or indirectly, affect his/her duties assisting the AIC in this investigation. The nominated person must agree to abide by the additional conditions listed below.

1. The nominated person shall assure the AIC that he/she has no known or perceived conflict(s) of interest.
2. During his/her tenure assisting the AIC's investigation, the person (the subject to this declaration) shall bring to the attention of the Investigator in Charge, both verbally and in writing, any known or perceived conflict(s) of interest of which he/she becomes aware
3. No information acquired by this person during the investigation may be discussed with, or divulged to, any person or organisation outside the investigation, without the written approval of the Investigator in Charge.
4. Where it is considered necessary, the person assisting the AIC's investigation may be allowed access to flight data and cockpit voice recording and/or restricted information under section 248 of the *Civil Aviation Act 2010 (as amended), Part XIII*. In any such case, that person shall be bound by the confidentiality provisions of the *Civil Aviation Act 2010 (as amended), Part XIII, and the Commissions of Inquiry Act 1951 (as amended), Section 12, Preservation of Secrecy*.
5. At all times, the person assisting the AIC's investigation shall follow any instructions, limitations or requirements in the conduct of the investigation given by the Investigator in Charge or his/her representative(s).
6. The AIC's Chief Executive Officer, or his/her representative, may remove the person from the investigation if he/she contravenes the obligations imposed by the *Civil Aviation Act 2010 (as amended), Part XIII, and the Commissions of Inquiry Act 1951 (as amended), Section 12, Preservation of Secrecy*, or this agreement, or if it is considered that the presence of the person may impede or compromise the integrity and/or conduct of the investigation.
7. Further conditions set down by the Investigator in Charge:

Note: In addition to briefing the person nominated to assist the AIC's investigation on the relevant legislative provisions, if considered necessary, or if requested by the person, a copy of the relevant sections of the *Civil Aviation Act 2010 (as amended), Part XIII, and the Commissions of Inquiry Act 1951 (as amended), Section 12, Preservation of Secrecy*, will be provided to the person, and relevant AIC policies and procedures will be further explained before being approved to assist the investigation.



NOTES



TO REPORT AN AIRCRAFT ACCIDENT or INCIDENT

Telephone the

Civil Aviation Safety Authority of PNG (CASA)

+675 302 7528 (21:30 – 06:00 UTC)
+675 7698 0239 (06:00 – 21:30 UTC)
+675 7031 4167 (06:00 – 21:30 UTC)

and the

PNG Accident Investigation Commission (AIC)

+675 323 2911 or +675 7550 0715 (06:06 - 21:45 UTC) Duty Investigator
+675 323 2184 or +675 7550 0703 (06:06 - 21:45 UTC) Duty Investigator

GENERAL ENQUIRIES

PNG Accident Investigation Commission

Level 1, NAQIA Haus, Portion 81, Moera Tobo Rd, 6 Mile, National Capital District, PNG

PO Box 1709, BOROKO, National Capital District, PNG

Tel: +675 323 2911,

Fax: +675 323 2139,

E-mail: infor@aic.gov.pg

Website: www.aic.gov.pg