



Australian Government  
Australian Transport Safety Bureau

**ATSB**

# **Serious incident classification**

Using the Annex 13 Attachment C risk approach

*ICAO Regional Accident Investigation Workshop  
(Asia and Pacific Regions)*

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AVIATION | MARINE | RAIL

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## Definition: Accident

An occurrence associated with the operation of an aircraft which..., in which:

- a) a person is fatally or seriously injured....; or
- b) the aircraft sustains damage or structural failure ....; or
- c) the aircraft is missing or is completely inaccessible.

## Definition: Incident

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

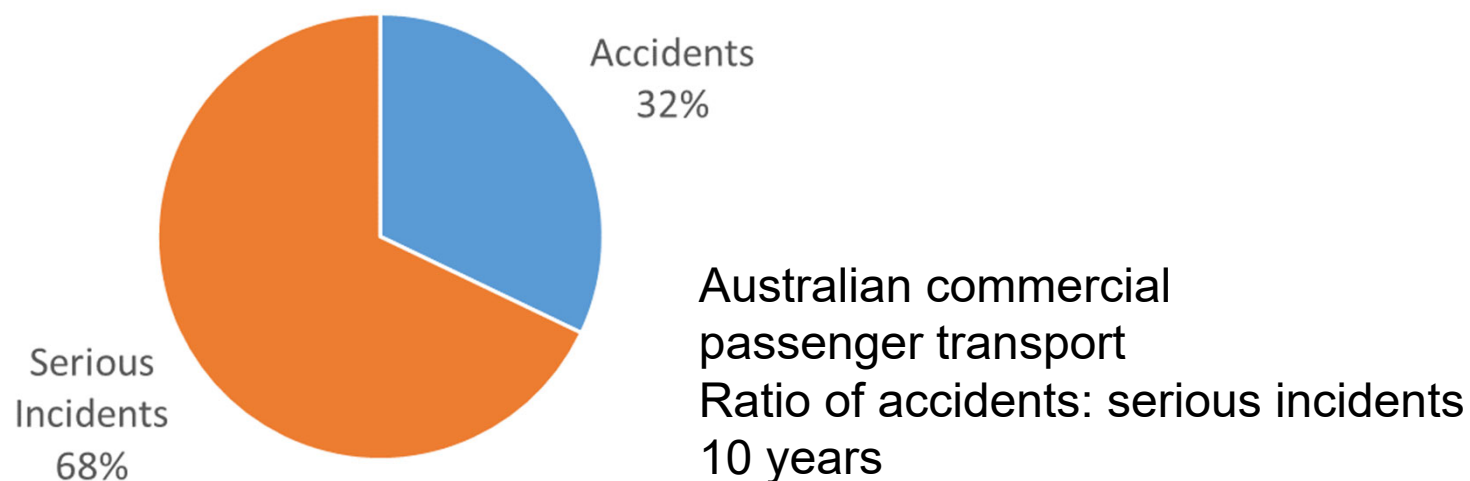
## Definition: Serious incident

An *incident* involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft .....

- Note 1.— The difference between an accident and a serious incident lies only in the result.
- Note 2.— Examples of serious incidents can be found in Attachment C

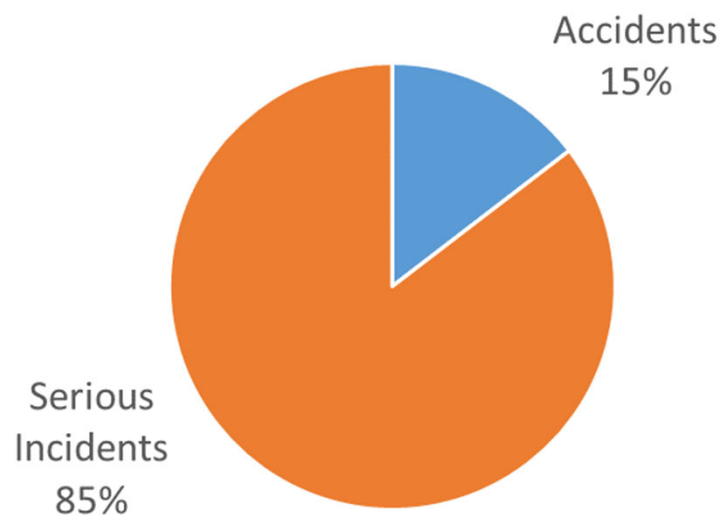
# History to Amendment 17

- ICAO recognised less serious incidents were being investigated than expected



# Large airline passenger transport

- Less accidents, so investigations focused on accidents only miss learning opportunities that could have prevented big accidents



Australian larger commercial  
passenger transport (> 38 seats)  
Ratio of accidents: serious incidents  
10 years

# What was the confusion?

- Attachment C had always listed examples of incidents that are likely to be serious incidents
- Some were commonly not serious incidents (eg. Flight crew incapacitation in multi-crew ops)
- Classification had no guidance, so variability between states emerged
- Some states using it as a prescriptive list: using things not on list as reason for not investigating

# How to use Attachment C

- List of examples:

*The incidents listed are examples of what may be serious incidents. However, the list is not exhaustive and, depending on the context, items on the list may not be classified as serious incidents if effective defences remained between the incident and the credible scenario.*

# Examples are Potential SIs

- Examples can be used to design reporting requirements
  - What is immediately reportable
  - Subset of incidents to be reported
- To comply with Annex 13 Paragraph 5.1.2 (investigating serious incidents, need to firstly be informed of all potential serious incidents)

## Key test: is it a serious incident?

- Determine if the incident had a high probability of becoming an accident.
- A high probability of an accident means:
  - there are few or no safety defences remaining to prevent the incident from progressing to an accident.

# High probability of an accident

2.2 The combination of these two assessments helps to determine which incidents are serious incidents:

		<i>b) Remaining defences between the incident and the potential accident</i>	
		<i>Effective</i>	<i>Limited</i>
<i>a) Most credible scenario</i>	<i>Accident</i>	Incident	Serious Incident
	<i>No accident</i>	Incident	

# Examples

Note: many questions you will need to answer to determine if the reported incident is a serious incident will require follow-up questioning with the reporter/operator.

*System failures (including loss of power or thrust)..... which caused or could have caused difficulties controlling the aircraft.*

- Single engine aircraft – engine failure
  - Likely some sort of forced landing which usually causes some damage (potential accident) with limited defences left (pilot skill)
  - Unless re-started fairly quickly, or on runway, or partial power loss with ability to divert (no accident potential)

*System failures (including loss of power or thrust)..... which caused or could have caused difficulties controlling the aircraft.*

- Twin piston engine aircraft – single engine failure
  - If on take-off/initial climb, ability to maintain height limited (potential accident depending on height and aircraft performance) with limited defences (training, skill)
  - If in cruise, ability to divert (no accident potential)

*System failures (including loss of power or thrust)..... which caused or could have caused difficulties controlling the aircraft.*

- Twin Jet engine aircraft – single engine failure
  - If on take-off/initial climb, ability to climb (still slight potential accident) but generally effective defences due to training (so normally an incident)
  - Uncontained engine failure – potential for significant damage (potential accident) and no defences to prevent that damage (so normally a serious incident)

*Near collisions requiring an avoidance manoeuvre to avoid a collision ...*

- Potential for accident – immediate action need to prevent (near) collision (yes) or aircraft never going to collide but action required to re-establish separation (no)
- Defences – awareness of pilots and ATC (no awareness, partial or total) and if some awareness (eg. through ATC alarm or TCAS) was there opportunity to respond

*....weather phenomena ....which caused or could have caused difficulties controlling the aircraft.*

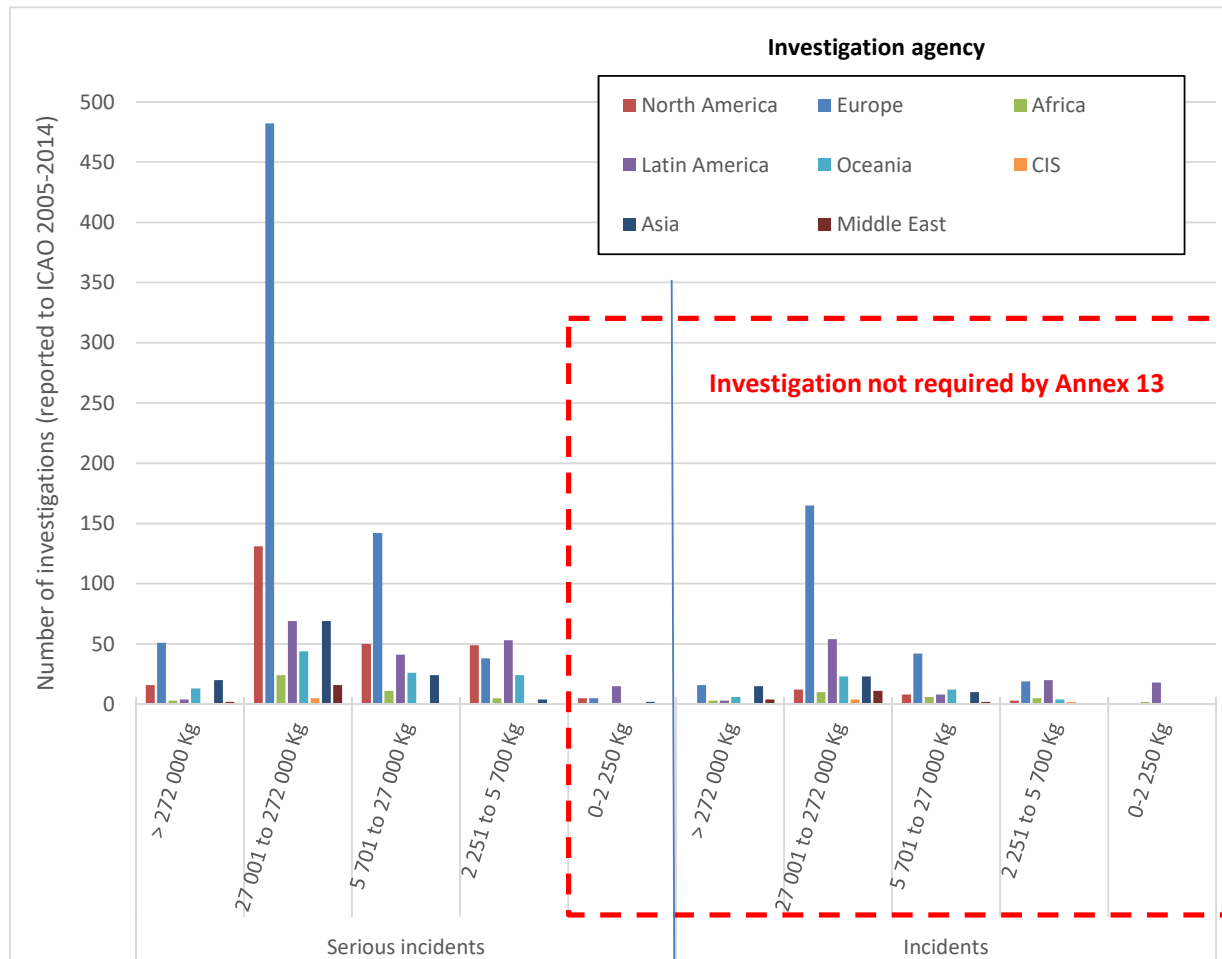
- VFR into IMC
- Potential accident if more than a few minutes in cloud
- Defences remain depend on was the aircraft IFR equipped, was pilot IFR trained, did pilot get assistance from ATC.

*Controlled flight into terrain only marginally avoided.*

- Flight below Lower Safe Altitude
- Potential accident depends on reason the aircraft descended below LSALT, the weather conditions (VMC or IMC), height below the LSALT and terrain in the area
- Very limited defences left if aircraft is in IMC, the crew is unaware of the descent and/or there is rising terrain in the area

# Investigation decisions

- Accident → Annex 13 says investigate
- Serious incident → Annex 13 says investigate for aircraft over 2250kg, recommends investigation for others
- Incidents → Annex 13 does not compel, but if resources allow, consider investigation if systemic issues can be found.



# Investigation level

- Not all investigations need to be large
- ATSB decides investigation and levels by:
  - likelihood of uncovering a systemic problems
  - operation type priority policy (passenger carrying operations, other commercial operations, private, higher risk operations like sport and recreational flying)

# Summary

- Serious incident investigations can find important systemic issues before a catastrophic accident outcome
- Need all potential serious incidents reported to you to be able to investigate them
- May need additional information to classify
- Investigations into incidents can still find system issues

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**Questions?**