



ACCIDENT INVESTIGATION AND PREVENTION (AIG) DIVISIONAL MEETING (2008)

Montréal, 13 to 18 October 2008

Agenda Item 1: Annex 13

1.4: Format of the Final Report in Annex 13

REMOVAL OF CAUSES IN THE FINAL REPORT

(Presented by International Federation of Air Line Pilots' Associations)

SUMMARY

This paper offers reasoning in support of the removal of "causes" from the final report, as proposed in IFALPA WPs for this agenda item, and agenda item 1.1.

1. INTRODUCTION

1.1 When Annex 13 was initially written (1951) the accident rate was, by today's standards, totally unacceptable. In numerous accidents, by finding the 'cause' investigators were able to identify serious deficiencies that could be rectified. However, many accidents ended up being described as caused by human error and since the individual was responsible the need to investigate systemic issues was not apparent. During the 1980's there was a growing awareness of the systemic issues involved in many accidents which lead to the development by Dr James Reason and others of systemic models of accident causation (e.g. the 'Swiss Cheese' model). There has also been increased emphasis on human factors studies and the recognition that since we are all human and will all make mistakes, there is a need to look beyond a simple human failure. In recent years the concept of safety management systems has gained increased importance; emphasising safety cultures, open reporting, risk management and the importance of investigating incidents and accidents thoroughly to identify and implement safety actions in a non-punitive environment.

1.2 Linking a person's or an organisation's actions with leading to the accident, as Annex 13 does with its use of the term 'cause', is very close to laying blame, which is explicitly not the purpose of the investigation. Although, at least in the western world, airline accidents are rare; when they do occur the focus on the accident by media, politicians, lawyers, the general public as well as the aviation community is intense. While each group will have their own motivation and interest, generally one of their main desires is to find someone or thing to blame, i.e. who caused it. Those involved in the accident will also be trying to minimise damage to their company, organisation or professional group by

attempting to deflect culpability away from themselves. While the purpose of an Annex 13 investigation is only supposed to be for accident prevention the fact that the report will list the causes may influence the cooperation provided to it by parties that fear being listed as a cause of the accident.

1.3 One of the first things most people will read in an accident report is the conclusion with its associated causal statement. Those with a direct interest (eg. manufacturer, operator, crew, etc) will be hoping that they are not listed as having caused the accident while those with a more general interest will be looking to see who, or what, was to blame. Since the final links in an accident chain are usually the result of failures by people directly involved (crew, maintainer, controller) in all probability that person and their failure will be listed as the primary cause.

1.4 The need to list the causes of an accident may also have unwanted effects on the conduct of the investigation. In an ideal investigation the ‘what happened’ and ‘why it happened’ process should be steps in the process of developing safety actions and recommendations to prevent a recurrence and improve the safety of all operations. Unfortunately the cause list, both in terms of content and order can become too much of a priority for very little safety return, because it receives the most headline attention by the outside world.

1.5 Annex 13 currently directs reports to ‘include both the immediate and the deeper systemic causes’. However, many of the systemic issues, which may be the most important for future accident prevention, have little or no direct causal link to the accident. For example, fatigue is an issue that is present in many accidents but is rarely identified as a systemic cause since it is very hard to directly make the link from a person’s actions to his level of fatigue. As a result fatigue management may not have received the scientific and regulatory attention it deserved.

1.6 The recent US NTSB report into the 2001 American Airlines Flight 587 accident where the aircraft’s fin separated over Belle Harbour in New York is a useful example of how the causal statement can detrimentally affect the conduct and outcome of an investigation. The NTSB report contained the following probable cause statement:

3.2 Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the in-flight separation of the vertical stabilizer as a result of the loads beyond ultimate design that were created by the first officer’s unnecessary and excessive rudder pedal inputs. Contributing to these rudder pedal inputs were characteristics of the Airbus A300-600 rudder system design and elements of the American Airlines Advanced Aircraft Maneuvering Program.

1.7 In the lead up to the final report there was intense public bickering between American Airlines and Airbus defending their training system and design respectively; probably to minimise the risk of them being listed as the primary cause and thus the primary target for litigation. Rather than full co-operation with the investigation to prevent future accidents, both organisations were at least publicly on the defensive and as a minimum were applying indirect political pressure on the investigation. Fortunately for them it was the first officer’s fault, another case of pilot error. As far as accident prevention is concerned the cause statement failed to highlight the main issues, which includes the following:

- a) the misunderstanding of aircraft design requirements and limits by the crew, American Airlines and most of the rest of the world’s aircraft operators and pilots;

- b) the inherent limitations of simulators when utilised for jet upset training; and
- c) cultural issues within American Airlines where a captain concerned about the first officer's rudder inputs during a previous incident did not report it, or had no means to have it corrected in a non-punitive environment.

2. A MODEL FOR INVESTIGATING WITHOUT 'CAUSE'

2.1 In the early 1990's, Australia's Bureau of Air Safety Investigation (BASI) decided to remove any reference to causes in its reports. Instead they went to a system that looked at more systemic issues, while acknowledging and detailing any active failures that did occur; and made the focus of the report the safety actions and recommendations. The conclusion in BASI, and its successor the Australian Transportation Safety Bureau (ATSB), reports details Findings and Significant Factors, and never uses the word cause. Both organisations have developed excellent working relationships with various parties involved in investigations and have actively acknowledged, in final reports, the actions already taken by parties to improve the safety of their operation.

2.2 The elimination of causal findings in BASI and ATSB reports has had a positive effect on aviation safety in Australia. By highlighting more comprehensively the multiple issues in accidents it has improved the understanding of the aviation community, media, legal fraternity and politicians of the complexity involved in many accidents and reinforced the investigations aim of accident prevention. Organisations directly involved in the accident are more likely to actively cooperate with the ATSB since they know that they would not be the only thing targeted as the accident's cause and will receive credit in the report for corrective safety actions that they have already implemented. Misleading media headlines do still appear saying that the ATSB has blamed an individual or organisation for an accident but the reporter generally won't ignore the myriad of other factors involved. Politicians and public servants have recognised the importance of accident prevention and strengthened the independence of ATSB investigations through legislation (The Australian Transport Safety Investigation Act 2003). The legal community also finds it harder to misuse the reports and ATSB investigators as witnesses. While not all these developments are due to not finding causes for accidents, it is unlikely they would all have occurred in the timeframe they have if the ATSB continued to follow Annex 13 and continued to focus on the causes of accidents.

2.3 **Pressure to Provide a Cause.** There will always be some pressure to identify a cause of an accident. Outside pressure to find a cause can be mitigated, and has been in Australia, by ensuring that the explanation of the complexity of the accident and the myriad of factors involved is thorough. There is a need for an education process by investigative agencies so recipients understand the changes in format. For example the Introduction to ATSB accident reports, included in Annex C, outlines what the investigation is for and how the ATSB reaches its conclusions. The original AAC proposal just talks about findings (which AAC believed to both factual and as the result of analysis) but which has been interpreted as just factual. This confusion could extend to other groups so there is a need to re-word the proposal.

2.4 **State Regulatory Requirements.** Currently most countries accident investigation legislation specifies that causes should be identified. This is not surprising, as the current ICAO Standard (Annex 13) requires it. By taking cause out of the international standard it is then up to each individual country to work to amend their own legislation in order to comply with Annex 13 or to file an exemption. While the Standard remains, it is much harder to mount a case for amending national legislation, as it would be going against the ICAO Standard.

2.5 **Legal Investigations to Find Cause.** The current ICAO recommended practice is that any legal investigations to apportion blame or liability should be separate from Annex 13 investigations. Additionally IFALPA policy is that such legal proceedings shall be independent of Annex 13 investigations as a standard. The two processes need to be independent as they have different purposes, evidentiary processes and investigative techniques. For example, many legal investigations tend to be adversarial while Annex 13 investigations need cooperation between the parties for the best results. Regulators and prosecutors should not be basing decisions on whether to launch an investigation for blame or liability on the conclusions of the Annex 13 investigation. However, it would be naive to assume this would not happen. By not focussing attention on a few causes, Annex 13 reports are more likely to create a more complete picture of the significant factors. While this may widen the number of people or organisations subject to legal proceedings it will also probably lessen the weight of any charges.

2.6 **Media Speculation.** Major aviation accidents will always receive intense media interest, especially in the immediate aftermath of the accident. Media speculation as to the cause begins almost immediately and since the media feeds off controversy tends to go looking for someone or thing to blame, often with very limited information. When the final report is issued, generally at least a year after the accident, the media focus often returns. It is common to see headlines saying that the investigation agency blames someone or thing for the accident. This is due to the media directly linking cause with blame. Such headlines produce little benefit to aviation safety. When the conclusion to the report is more comprehensive, the media may well still lead with the sensational headline but should detail more of the contributing factors. One of the benefits from the Australian model is that following the release of an ATSB report; interested parties are able to address the media on each significant factor in turn and are under increased pressure to have put in corrective actions prior to the reports release. Where parties have already improved systems or practises Annex 13 reports should acknowledge this, helping to minimise the public damage to a person's or organisation's reputation.

3. **USING 'FACTOR' IN PLACE OF 'CAUSE'**

3.1 Cause should be replaced by terminology that broadens the focus of the investigation and is less closely linked to blame and liability. The term 'Factor' has been adopted by accident investigation agencies in Australia and Canada. Factor is defined in the Oxford Dictionary as; noun - a circumstance, fact, or influence that contributes to a result.

3.2 By including the surrounding circumstances and influences, looking for factors is more likely to lead to examination of the systemic issues than if an investigation is just looking for the cause. Since factors are contributing rather than leading to a result they are further removed from being used to apportion blame or forming the basis for prosecution.

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