



DIRECTORS GENERAL OF CIVIL AVIATION CONFERENCE ON A GLOBAL STRATEGY FOR AVIATION SAFETY

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Theme 1: The status of aviation safety today

Topic 1.1: Worldwide and regional trends in aviation safety

WORLDWIDE AND REGIONAL TRENDS IN AVIATION SAFETY

(Presented by the United States)

SUMMARY

The National Transportation Safety Board, the independent accident investigation authority of the United States, participated in numerous international accident investigations during calendar year 2005. Although the final report of these accidents by the State of Occurrence may not be available for some time, the investigations to date can assist ICAO as it continues to develop strategies to meet the evolving challenges in international civil aviation. This information paper presents selected events in 2005 that have had a particular impact on the perceptions of the air transport system throughout the world. Discussion highlights some of the difficulties experienced during the investigations, with an emphasis on the lack of flight recorder data. Observations of the States of the Operator safety oversight programme performance, service providers, airlines and individual airmanship are also examined. These findings are of continuing concern as ICAO and Contracting States move forward to develop a safety framework for the 21st century.

1. INTRODUCTION

1.1 Although worldwide aviation statistics continue to indicate a fundamentally safe growth pattern and continuing downward accident rate trend over past years, the global aviation system continues to display significant variation in the level of safety from one region to another. During calendar year 2005, a series of events occurred that negatively affected public confidence in the safety of the air transport system.

1.2 The United States, as a State of Manufacture of transport category aeroplanes, designated an Accredited Representative and advisors to participate in numerous fatal accident investigations in 2005 in accordance with Annex 13 — *Aircraft Accident and Incident Investigation* to the Convention on International Civil Aviation (ICAO). A list of significant events, including date, State of Occurrence, and operator (and State of the Operator if different from State of Occurrence), is below.

- a) 3 February 2005 Kabul, Afghanistan Kam Air B-737;
- b) 14 August 2005 Grammatikos, Greece Helios Airways (Cyprus) B-737;
- c) 16 August 2005 Machiques, Venezuela West Caribbean Airways (Colombia) MD-82;
- d) 23 August 2005 Pucallpa, Peru TANS Airline B-737;
- e) 5 September 2005 Medan, Indonesia Mandala Airlines B-737 and
- f) 23 October 2005 Lagos, Nigeria Belleview Airlines B-737.

2. DISCUSSION

2.1 *Investigative participation.* The United States National Transportation Safety Board participates routinely in investigations of accidents and serious incidents conducted by other States per the Convention. Through the ICAO investigation process and investigative activities in 2005, some observations have emerged that deserve special attention. The formal investigations of most of the 2005 events are in progress and the Final Report of Accident is not yet available. However, States of Occurrence have released noteworthy factual information that can form a basis for remedial actions by the concerned organizations.

2.2 *Flight recorders.* Five of the seven investigations listed above do not have the full benefit of the information from the flight recorders (voice or data), which are required for transport category aeroplanes. Loss of the flight recorder information in these instances can be attributed to deficient equipment, which affected the recorders' reliability, and theft or vandalism at the accident site due to local site security issues. Flight recorder information is an important part of any successful investigation because it provides critical insight into the mechanical condition of the aeroplane and the actions of the flight crew prior to the accident.

2.2.1 *Recorder security.* In three of the investigations, wreckage protection was insufficient and the investigative team did not locate one or both of the flight recorders, and the recorders were not turned over to the investigative authority.

2.2.2 *Recorder maintenance.* In four of the investigations, although the recorders were recovered, the data extracted was of insufficient quality to ensure the complete validity of the information. For example, the cockpit voice recorder sound was obscured by internal noise, inputs from

sound channels did not record, or data from specific digital flight data recorder sources were not present in a readable format following the accident. Historical records maintained by States of Manufacture readout facilities indicate operator attention to the continuing airworthiness of the flight recorders is lacking. State of the Operator oversight regarding flight recorder maintenance continues to be a worldwide airworthiness concern during accident and incident investigations.

2.3 *Corporate structure.* Six of the seven airlines are small, recently formed, independent companies with a limited fleet of aeroplanes acquired from various international brokers. These carriers do not share the benefits of membership in an international trade group such as the International Air Transport Association, which provides a vehicle for promoting aviation safety. They do not have corporate safety management systems or flight operations quality assurance programmes, both of which can help carriers reduce or eliminate safety risks.

2.4 *Aircrew and maintenance personnel training.* Due to a limited corporate organizational structure and background of the staff and sometimes-remote headquarters locations, these operators do not have major in-house aviation training programmes or facilities. The carriers arrange contract training for their basic flight and maintenance requirements, but do not provide in-depth company training. Records obtained during the investigations indicate that a variety of training sources beyond the aeroplane manufacturer's programmes are used, and this training is usually with other airlines or independent training providers. The training is general in nature and may not be specific to company policy, a company operations manual, route structure or local procedures.

2.5 *Oversight.* The circumstances of each accident bring into question the State of the Operator authorities' compliance with ICAO Standards and their ability to provide effective safety oversight. Less than complete compliance of the involved air carriers with management responsibilities, crew performance, and airworthiness issues indicate that core safety oversight responsibilities of the State of the Operator may not be met.

2.6 *Ability to conduct investigations.* These events have severely tested the infrastructure and taxed the aviation resources of the affected States to conduct the investigations in accordance with ICAO Annex 13 Standards and Recommended Practices. It is important to recognize that, in some cases, limitations of local resources and the deficiencies in safe custody of the accident site have resulted in loss of critical information.

3. CONCLUSION

3.1 Although the investigations of these fatal air transport accidents are ongoing, in each of the seven accidents, the factual data available to date has not revealed a technical failure of the aeroplane that would lead to a major accident. However, operational factors appear to be present in every event. There is ample evidence of non-compliance with established procedures and checklists, failure of the industry standard and accepted crew resource management concepts, and less than acceptable adherence to the strategies necessary to avoid controlled flight into terrain. Evidence in these accidents indicates some air transport crews display airmanship that is substandard for the commercial aviation industry. Further, aircrew and maintenance personnel performance puts into question their training and the airline

management practices, and reflects directly on the diligence of the State of the Operator aeronautical authorities to conform to the standards expected within the international aviation community. These findings should be of continuing concern to the world aviation community, particularly from the viewpoint of a host State receiving international traffic or in considering the risk to airline passengers on a regional basis. ICAO and Contracting States must continue to strive toward the highest possible level of safety for the 21st century to ensure that the global aviation community is not compromised and the variation in safety among world regions is eliminated.

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