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ASSEMBLY — 35TH SESSION

TECHNICAL COMMISSION

Agenda Item 24: ICAO Global Aviation Safety Plan (GASP)

FOR THE TAKING INTO ACCOUNT OF THE EVOLUTION OF SPECIFICATIONS CONCERNING FLIGHT DATA RECORDING SYSTEMS

(Presented by France)¹

SUMMARY

This document presents recent experiences of France with the recovery and use of flight data recording systems. It recalls improvements in terms of specifications for these data recorders within the framework of the European Organization for Civil Aviation Equipment (EUROCAE). It proposes to resume work in this field in order to advance the relevant standards and recommended practices (SARPs) of Annexes 6 and 13.

Action by the Assembly is in paragraph 4.

1. INTRODUCTION

1.1 The goal of the Global Aviation Safety Plan (GASP) is to significantly reduce the number of accidents throughout the world regardless of air traffic volume. For this purpose one of three main focus points is to examine the causes of aviation accidents in the world in order to better identify specific safety problems which must be addressed to reduce both the number and rate of accidents.

1.2 Investigation into the causes of an occurrence begins with the collection of factual information, including the recovery of the CVR and FDR flight data recorders. While, generally, recorded data alone do not make it possible to determine the causes of an occurrence, they are nonetheless, when available, an essential primary source of information. However, recovering flight recorders can require extensive human and technical resources, or the data recorded can be incomplete or difficult to read.

¹ English and French versions provided by France

2. LIMITATIONS OF CURRENT RECORDERS

2.1 Difficulty of search

2.1.1 A homing beacon is located in the recorder, but the recent example of the Sharm el-Sheikh catastrophe shows us that under violent impact the two blocks can split apart. This same example has shown us how difficult search efforts can be when the recorders have been submerged 1 000 metres below water surface. There are also examples of recorders destroyed by fire following a crash. Introducing an ejection mechanism would facilitate their recovery.

2.2 Obsolescence

2.2.1 Current recording methods can complicate the interpretation of recordings. Following the investigation of the Swissair flight 111 crash in 1998, the Transportation Safety Board of Canada (TSB) recommended that "Regulatory authorities, in concert with the aviation industry, take measures to enhance the quality and intelligibility of CVR recordings" (recommendation A03-06). The Flight Recorder Panel (FLIRECP) began to explore the failures of magnetic tape flight recorders, in order to "continue to better document the necessity to replace them with more reliable systems". The AIG/99 meeting also recommended that the FLIRECP Panel study the issue of magnetic tape flight recorders replacement.

2.3 Insufficient number of parameters

2.3.1 Attachment D to Annex 6 specifies thirty-two parameters to be sampled on the FDR of a plane which has a take-off mass of more than twenty-seven tons, which often only allows for a partial understanding of the event. An exhaustive analysis may often require many more data, as the TSB recently indicated in one of its recommendations (recommendation A03-07).

2.4 Image recording

2.4.1 During many investigations, image recording of the cockpit would have been particularly useful to quickly shed light on some flight crew actions. Currently, this information is extrapolated from cross-analyses and lengthy investigations, which are not always sufficient to eliminate uncertainty. Thus, following the F-BTSC Concorde accident of July 2000, the French Bureau d'Enquêtes et d'Analyse pour la Sécurité de l'Aviation (BEA) has recommended that "ICAO set a precise timetable for the FLIRECP Panel to establish proposals for the installation of image flight recorders onboard aircraft engaged in public transportation". The American National Transportation Safety Board (NTSB) and the TSB have also put forth similar recommendations (NTSB recommendations A00-30 and 31, as well as TSB recommendations A03-08 and 09 for example).

3. DEVELOPMENTS IN PROGRESS

3.1 EUROCAE work

3.1.1 Technical advancements of recorders must be based on precise specifications (quality of recording, fire resistance, etc.). The European Organization for Civil Aviation Equipment (EUROCAE) contributes to the development of these specifications by offering a workspace to the experts.

3.1.2 The EUROCAE 50 working group brings together experts from the aeronautical industry, Civil Aviation Authorities, and investigation bodies throughout the world. In March 2003, this group produced a specification document for minimal operational performance of flight recorders (Document ED-112).

These specifications include :

- Ejectable recorders,
- Independent power supply of recorders,
- A new list of parameters (increased to eighty-eight for aircraft),
- Image recording,
- Data link recorders,
- Combined recorders,
- Increased fire resistance of recorders.

3.2 **Work of Air Navigation Commission Flight Recorder Panel (FLIRECP)**

3.2.1 The FLIRECP met for the last time on 20th November, 1998. At the end of this meeting, several work items came up, including the need to "give priority to the review of the EUROCAE parameter list, to the specification relating to independent power supply of flight recorders, and also to the replacement of flight recorders on existing aircraft ". At that point, the FLIRECP work programme was subordinated to that of the EUROCAE 50 working group.

3.2.2 The group of experts also approved the analysis of the obsolescence of magnetic tape recorders, as well as the update of the specifications of flight data analysis programmes.

3.2.3 Afterwards, these experts encountered difficulties in the conduct and follow-up of their work. The group has been waiting for the nomination of a panel secretary since 2001, which compromises the rapid convening of meetings. Specifically, the group has not been able to examine the document produced by EUROCAE.

4. **ACTION BY THE ASSEMBLY**

4.1 The Assembly is invited to:

- a) affirm the importance of flight recorders for improving air safety; and
- b) adopt the draft resolution presented in the appendix with a view to accelerating the evolution of Standards and Recommended Practices applicable to these systems.

APPENDIX

DRAFT ASSEMBLY RESOLUTION A35/XX

Resolution A35/XX

**For the taking into account of the evolution of specifications
concerning flight data recording systems**

Considering that the primary objective of the Organization is to ensure the safety of international civil aviation worldwide;

Considering that the establishment of international Standards contributes to this objective;

Recognizing the importance for safety of flight data recorders; and

Recognizing the need to develop specifications for these systems;

The Assembly:

1. *Directs* the Council to resume work on flight recorders as soon as possible and to give priority to problems arising from the search and recovery of these systems, obsolescence, the insufficient number of recorded parameters, and the need to prescribe image recording of the cockpit; and
2. *Requests* the Council to report to the next session of the Assembly on the implementation of the present resolution.

— END —