

Cabin Safety Research Technical Group Meeting Summary

March 3-5 1999

Main Agenda Items

- 1 Conference wrap-up
- 2 Evacuation studies
- 3 RAI study on fatality rates against aircraft size
- 4 Accident databases and prioritisation
- 5 Current research plans
- 6 NASA Programme

1 Conference Wrap-up

1.1 Conference Highlights

The International Aircraft Fire and Cabin Safety Research Conference organised by the Group and held in Atlantic City November 1998 was reviewed. The conference covered a wide range of topics and the Group considered the conclusions of the presentations and comments from attendees. Although there was predictable interest in the Conference on areas of current activity, such as fuel tank safety and thermal acoustic insulation, much useful information for future research direction in other areas was obtained.

1.2 Administrative points.

It was considered that the Conference had worked satisfactorily with good feedback from attendees. A number of detailed points were considered with a view to any changes that could be made to improve any future conferences. It was noted that it was important for some presenters from academic background to have a published paper rather than a web site entry, therefore a CD with an FAA reference number will be available from April 1999. The JAA representatives agreed to advise on potential conference locations in Europe for a provisional timeframe of 2001 but it was considered that it would be very difficult to better the arrangements in Atlantic City used for the two previous conferences.

2 Evacuation Studies

The Cranfield University Study on evacuation metrics was continuing and the results of two pilot video tape analyses were presented. It was agreed that it would be difficult to interpret the results until more data was available and it was planned to review the work at the next CSRTG meeting when the work will be complete.

It was agreed that TCCA and CAA should liaise on research arrangements for trials planned at Cranfield University.

An update was given on the CAMI B747 evacuation facility. The refurbishment is well underway and initial trials may be possible towards the end of 1999. It was hoped that a participant tracking system might be installed and a commercial system had been identified that

might be suitable. CAA may fund Cranfield University to build a wide-body/double deck cabin simulator for research.

The way forward for computer modelling of evacuation was discussed as the latest version of airEXODUS was scheduled to be available from April 1999. A Proposal for further validation was considered with members to respond to CAA before availability of the new model. The benefits of independent evaluation as undertaken by NIST in the US were noted and CAMI would be checking on the status of the study.

3 ENAC-RAI Activity

The completed paper of the presentation 'Dimensions of aircraft occupants motivation and behaviour' given at the Atlantic City Conference was delivered for publication in the Conference Proceedings.

4 Accident databases and prioritisation

The latest version of the CSRTG survivable accident database (v10) was distributed (read-only). This will shortly be available to all researchers via CAA, possibly with the addition of some further enhancements to be funded by TCCA. The read/write version had been distributed and was under modification following FAA comment.

The prioritisation study results were reviewed. Concern was expressed by some members on the reliability of the costing information supplied to the report originators although the perceived benefit were considered more satisfactory. It was suggested that one approach might be to take (say) the top 20 perceived priority survivability factors and produce research solutions to mitigate the factor. Possibly a reduced fidelity benefit study could then be undertaken for a modest number of accidents in order to provide more objective guidance. It was recognised however that this might produce misleading results for factors with a low or zero accident experience and in any case there was a need to avoid multiple accounting for potential lives saved by different research solutions. CAA agreed to consider the matter further and to prepare a proposal for the group.

A benefit analysis for ground inerting of aircraft fuel tanks was presented and the final report would be made available to FAA within a few weeks.

It was agreed to provide an updated database of research activities and CAA offered to arrange for details supplied to be entered in a common format.

5 Current research plans

DGAC reported that an interim report was available (in French) on the cabin crew training study and the next task will be to prepare and analyse a questionnaire for cabin crew.

DGAC planned to place a cabin crew communication study in the near future. DGAC had invited JAA involvement in the selection process.

The DGAC pictogram study results had been supplied to the JAA Cabin Safety Study Group.

DGAC would be looking at the working position for cabin crew as part of an in-house study, additionally a study on the ergonomics of the cabin crew work station was starting and has the support of French airlines and the major French cabin crew trades union.

The DGAC seat/floor strength study unfortunately had not been placed owing to bureaucratic problems but progress was expected.

CAMI discussed concern about slide performance in the wet and sought details of earlier work in Japan.

CAMI reminded the Group that the study on flight attendant training for ditching was available.

TCCA planned a briefing card study at Cranfield University. They were also working on the personality profile for use during evacuation research. There would be a funded upgrade of the survivable accidents database and a set of representative accidents would be selected for simpler cost benefit studies.

FAA Technical Center was heavily involved in the external fire burnthrough research although other studies continued on fuel tank explosions, halon replacements and cargo compartment fire suppression systems. Crashworthiness was focused on modelling capabilities and work on reconfiguring the hybrid III dummy.

CAA was active on burnthrough research with the medium scale test rig looking at practical insulation fastening materials. It was hoped that a Type III study looking at improved briefing methods might be undertaken. A study was planned to look at population anthropomorphic changes and relate the current body dimensions to seating arrangements, also reviewing deep vein thrombosis and reduction in mobility following restricted movement.

NASA Programme

A NASA representative would be attending future meetings if appropriate. A resume of the current programme was presented. In the fire area, five main topics were active:

1. Fire detection
2. Suppression
3. Inerting systems
4. Improved flammability fuels
5. Improved cabin interior materials.

Crashworthiness focused on improved modelling and crash resistant fuel systems plus seat/restraint systems (for General Aviation).

Next meeting

The next meeting was planned for July 12-13 1999