

## Development of a Video on In-Flight Fire Fighting

### **Background**

The NTSB conducted a review of commercial aviation accidents involving in-flight fires. The review prompted the NTSB to issue a number of safety recommendations to the FAA, namely A-01-83 through A-01-87. One such recommendation was to develop an Advisory Circular (AC) to address a number of issues linked to in-flight fires. AC 120-80 was released on 1/8/04, providing guidance material on the following:

Discusses the dangers of in-flight fires, with particular emphasis on hidden fires that may not be visible or easily accessed by the crew. It discusses the importance of recognizing and quickly accessing the conditions, and the importance of taking immediate and aggressive action,

Provides guidance on how to deal with in-flight fires, while stressing the effectiveness of Halon extinguishers,

Discusses the importance of appropriate crewmember training in dealing with hidden fires, the effective application of fire extinguishing agents behind interior panels, and the urgency of the crew's action in dealing with such fires.

In order to supplement the written AC, a proposal was made within the Cabin Safety Research Technical Group to develop a video on in-flight fires and related topics. The video would differ slightly from previously-released training videos, which are typically used by airlines to familiarize the cabin attendants with the proper use of safety equipment. The proposed video would be tailored more towards the AC, for example:  
detailing the dangers of fires in hidden areas,  
showing actual fires conducted in test aircraft,  
stressing the importance of using halon extinguishers quickly,  
emphasizing how halon does not consume oxygen during use, and that the consequences of allowing a fire to grow unabated can be catastrophic,  
testimonials from researchers, flight attendants, etc.

### **Summary**

During the initial meeting, the overall concept of developing a video was discussed. Additionally, several related training videos were viewed, in order to gain a sense of what is currently available. Topics such as the intended audience, the exact content, running time, the ability to make the video interactive (such as a DVD), and whether some or all of the script development would be contracted out were also discussed. A tour of the FAA Technical Center's video lab was provided, to demonstrate the state-of-the-art capabilities of this facility.

### **Planned Course of Action**

The best foundation for any type of video is a solid script. Since this in-flight fire video effort is in the early stages, it was agreed to first generate a list of desired topics, and provide these to the FAATC. Since it is likely that duplicate topics will result, the FAATC has agreed to review the list and streamline it accordingly. Following this, the topics can be discussed, refined, and eventually molded into a working script.

Please send the list of in-flight fire video topics to [Tim.Marker@faa.gov](mailto:Tim.Marker@faa.gov)

## Current List of Topics for In-Flight Firefighting Video

### Topic 1. Major Differences of Various Types of Passenger Aircraft.

Flight attendants must familiarize themselves with the particular aircraft they are flying on (explain the big difference between narrow and wide-body, and the relative differences in performance of handheld extinguishers in each of these types of aircraft). For example, extinguishing a fire in the overhead area of a B737 or MD-80 may involve standing on a seat, removing a ceiling panel or gaining access, and discharging agent into the confined area. In contrast, extinguishing a fire in the overhead of a B747, B767, or B777 may be much more difficult. In order to gain access, standing on the seat arms or backrest may be required due to the greater ceiling height. Removing a ceiling panel may not be possible, so gaining access by other means may be the only method of discharging agent into the space.

### Topic 2. Proper Use of Firefighting and Protective Equipment.

Flight attendants must be familiar with the particular PPE that is used in the aircraft they are flying on. What they used in training may not necessarily be the type that they would use in an emergency (show file footage of difficulties donning PPE's). Flight attendants must also be familiar with the proper operation of the extinguishers. For example, some extinguishers do not come equipped with a flexible discharge hose. In many instances, a fire in the overhead area will require that the extinguisher be tilted in order to aim the nozzle and direct the stream of agent into an opening. The flight attendant must be aware that not all of the agent will be available in this situation, since a dip-tube typically extends down to the bottom of the extinguisher, in order to siphon all of the liquid agent out while in the upright position. In addition, newer, more environmentally-friendly agents are continually being introduced, while the conventional halon 1211 is phased out. Flight attendants must become familiar with the proper use of these newer agents/devices.

### Topic 3. Discussion of Actual Incidents or Accidents.

What happened, and how the flight attendants were successful or unsuccessful in combating the fire should be discussed. This section could include instances where quick responses led to the best outcomes, and how the discharge of halon 1211 is not harmful in an enclosed cabin, especially when compared to the potential harmful or catastrophic effects of an uncontrolled in-flight fire. Mock-up tests showing typical cabin fire scenarios could be added to help illustrate the concept.

### Comments from Group

Jeff Gardlin: Tim: I think the topics you have identified are good. I assume these are in addition to the guidance that follows the AC. I think it's important to discuss the overall philosophy and risks etc., along with the mechanics of airplane differences, donning, etc. I suggest it might be useful to show how improper technique or action can fail to work, in addition to showing the correct procedure. This might be tied into the accident discussion. Visual examples are valuable for as many topics as possible. Otherwise, I don't have much to add. Seems like it's on the right track.

Mac McLean: PBE not PPE.