Class E Cargo Compartment Smoke Detection



Presented to: International Aircraft Systems Fire Protection Working Group. London UK

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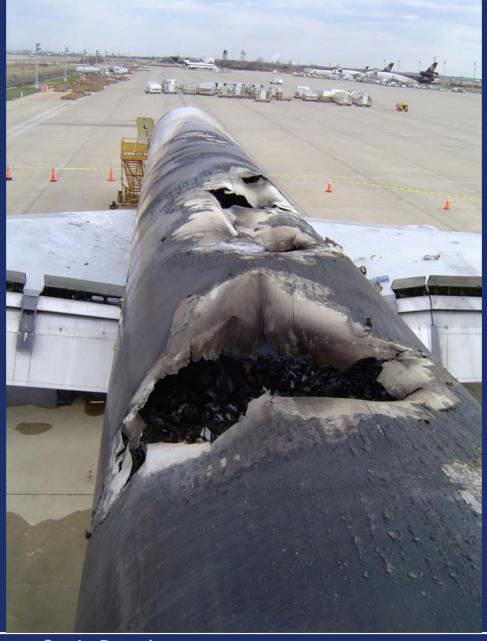
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Cockpit Voice Recorder Transcript¹

- 2333:44 Aircraft cleared to descend from FL 330 to FL 240
- 2334:39 "Smell like wood burning"
- 2335:40 "It's pretty strong now"
- 2335:54 Cockpit door opened "It's more in the back"
- 2338:39 One pack turned off
- 2343:18 "Fume evacuation"
- 2343:27 Packs on max flow, recirc fan off
- 2347:59 Cockpit door opened again "It's definitely stronger in the back. No
- haze or smoke when I shined my light back there" At FL 40
- 2354:42 "Cargo smoke detectors on" At FL 20
- 2355:48 Landing gear down
- 2355:57 "Lower cargo compartment aft smoke detectors on"
- 2359:00 Touch down
- 2359:02 "Smoke in cockpit"
- 2359:45 End of transcript. Crew evacuated through L1 door
- ¹ Source: NTSB Accident Report

International Aircraft Systems Fire Protection Working Group



Smoke Barrier Access Opening







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NTSB Recommendation A-07-98 to the FAA.

"Ensure that the performance requirements for smoke and fire detection systems account for the effects of cargo and cargo containers on airflow around the detection sensors and on the containment of smoke from a fire inside a container and should establish standardized methods of demonstrating compliance with those requirements. (A-07-98) "

727 Freighter Main Deck







747SP Below Floor Compartment



Test Project

- Smoke tests will be conducted with the compartment empty, fully loaded with containers, and loaded with a mix of containers and pallets. Smoke detection times will be compared to determine which configuration produces the slowest detection times.
- Sandia smoke transport CFD code will be used to simulate all the actual smoke test scenarios. Smoke test results will be compared to simulation results.
- Results of above testing will dictate future activities.

