Class E Cargo Compartment Smoke Detection and Active ULD Testing


By: Dave Blake. FAA Technical Center. Atlantic City, NJ. Email: Dave.Blake@faa.gov

Date: November 19-20, 2008
UPS DC-8
Feb. 7, 2006
Philadelphia, PA
Cockpit Voice Recorder Transcript

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
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) “
Main Deck Airflow approximately one air change every 5.1 minutes (11.8 air changes/hour). Air from one pack supplied with APU bleed air.
4 Aspirated Photoelectric Smoke Detectors (94-96% light transmission/ft alarm point)

Certified to one minute detection time (FAR 25.858)
727 Freighter 88” cargo container positions
Class E Cargo Compartment Smoke Detection and Active ULD Testing
International Aircraft Systems Fire Protection Working Group
November 19-20, 2008
727 Main Deck

Detection Time (seconds)

Position

Empty Detection Time
Full Detection Time
Similar tests will be conducted comparing smoke detection times in an empty and fully loaded cargo compartment.

Testing will also be conducted to determine the influence of the airflow from “active” containers on smoke detection times.
747SP Below Floor Compartment