



NTSB National Transportation Safety Board

Office of Marine Safety

Handheld Fire Extinguisher Use in Hidden Area Fires

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Objectives

Two case studies of events in 2003 and 2009

–Evaluate

- Crew's response to the fire
- Selection and use of extinguishing materials
- Use of protective equipment

–Lessons learned from each incident

NTSB Recommendations

2002 NTSB recommendations to the FAA

- A-01-083: AC describing need to take immediate and aggressive action in response to in-flight fire
- A-01-084: Ensure incorporation of AC into air carrier training programs
- A-01-087: Issue flight standards bulletin on Halon use

Case One-2003

History of Incident

- Fire in aft lavatory during cruise flight
- Passenger reported smoke in lavatory
- Flight attendant entered lavatory and opened cabinet under sink; saw flames coming from around the water heater
- Discharged Halon extinguisher; no flames appeared after discharge

Case One-2003

History of Incident

- Captain advised of fire, declared an emergency and diverted
- After fire was out, FA turned off water heater
- Water level indicator sensor was actual source of fire

Case One-Conclusions

Crew response

- Identification of fire location
- Immediate use of fire extinguisher

Extinguishing materials

- FA chose Halon because of unknown nature/cause of fire
- One extinguisher used

Case One-Conclusions

Use of protective equipment

- Did not use PBE because there was no smoke

Training

- Crew received initial and recurrent training

Case Two-2009

History of Incident

- During cruise flight, Captain smelled smoke in cockpit; checked with cabin crew to see what was burning
- Purser noticed smoke coming from center left lavatory
- Fire indicator outside lavatory annunciated

Case Two-2009

History of Incident

- Closest flight attendant given extinguisher and opened lavatory door
- Lavatory completely filled with smoke; no clear indication where the fire was located
- FA sprayed extinguisher at “chest” level until it was empty

Case Two-2009

History of Incident

- FA donned PBE and used another extinguisher; smoke began to dissipate
- FA opened compartments in lavatory; sprayed extinguishers into all compartments and in ceiling vent
- Captain informed crew of diversion

Case Two-2009

History of Incident

- During firefighting, FA removed PBE
- FA used flashlight to inspect under sink compartment; door was burned and walls still hot to the touch
- All extinguishers onboard were used as well as bottled water
- FA stated that she never saw visible flames

Case Two-2009

History of Incident

- Airplane landed and passengers deplaned
- Airport fire department met aircraft; performed addition overhaul on lavatory
- Area of fire origin was back section of the sink cabinet not visible from lavatory door

Case Two-Conclusions

Crew response

- Identification of fire location
- Immediate use of fire extinguisher
- Multiple extinguisher used

Extinguishing materials

- Halon extinguishers
- Bottled water

Case Two-Conclusions

Use of protective equipment

- PBE initially used but was removed for several reasons

Training

- Crew received initial and recurrent training
- Not aware of FAA training video

Summary

- Identification of fire location
- Response to fire
- Training
 - Firefighting
 - PBE



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