

Laptop Battery SAFO

Inflight Fire Fighting Training Video InFO

Presented to: International Aircraft Systems Fire
Protection Working Group. Atlantic City, NJ

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Federal Aviation
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SAFO

Safety Alert for Operators

SAFO 09013
DATE: 6/23/09

Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo

A SAFO contains important safety information and may include recommended action. SAFO content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest possible degree of safety in the public interest. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO.

Subject: Fighting Fires Caused By Lithium Type Batteries in Portable Electronic Devices

Purpose: To recommend procedures for fighting fires caused by lithium type batteries in portable electronic devices (PED).

Background: The two types of batteries commonly used to power consumer PEDs brought on aircraft are lithium batteries (disposable) and lithium-ion batteries (rechargeable). Both these types are capable of ignition and subsequent explosion due to overheating. Overheating results in thermal runaway, which can cause the release of either molten burning lithium or a flammable electrolyte. Once one cell in a battery pack goes into thermal runaway, it produces enough heat to cause adjacent cells to go into thermal runaway. The resulting fire can flare repeatedly as each cell ruptures and releases its contents.

Discussion: Based on testing by the Fire Safety Branch of the Federal Aviation Administration (FAA) William J. Hughes Technical Center, the following procedures are recommended for fighting a fire of a lithium-type-battery powered PED. The procedures consist of two phases: (1) extinguishing the fire, and (2) cooling the remaining cells to stop thermal runaway.

- (1) Utilize a Halon, Halon replacement or water extinguisher to extinguish the fire and prevent its spread to additional flammable materials.
- (2) After extinguishing the fire, douse the device with water or other non-alcoholic liquids to cool the device and prevent additional battery cells from reaching thermal runaway.

WARNING: Do not attempt to pick up and move a smoking or burning device! Bodily injury may result.

WARNING: Do not cover the device or use ice to cool the device. Ice or other materials insulate the device, increasing the likelihood that additional battery cells will reach thermal runaway.

Reference Materials: The following are additional information related to lithium-type battery fires:

Additional information on lithium-type battery fires may be found by clicking on this link: [SAFO 09013SUP.pdf](#)

The FAA has developed a training video to demonstrate effective techniques for fighting lithium-type battery fires. See the Video on Laptop Battery Fires at <http://www.fire.tc.faa.gov/2007Conference/proceedings.asp> Click on the "Training Videos" link on the lower right of the page.

Recommended Action: Directors of safety, directors of operations, training managers, and crewmembers should collaborate to include these procedures in the operator's manuals, operations, and training.

Approved by: AFS-200

OPR: AFS-220

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www.fire.tc.faa.gov**

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InFO

Information for Operators

InFO 09010
DATE: 6/23/09

Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info

An InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Availability of a Federal Aviation Administration (FAA) In-flight Firefighting Training Video

Purpose: To announce the availability of a FAA-produced training video to complement [Advisory Circular \(AC\) 120-80, In-Flight Fires](#).

Discussion: A National Transportation Safety Board (NTSB) review of commercial aviation accidents involving in-flight fires during the period 1983 to 2000 prompted the NTSB to issue a number of safety recommendations to the FAA, including the development of an AC to address a number of issues linked to in-flight fires. The FAA agreed with the safety intent of those recommendations and issued [AC 120-80, In-Flight Fires](#), on January 8, 2004. The FAA Technical Center Fire Safety Branch has developed a training video to complement the AC.

This video discusses the danger of in-flight fires, particularly hidden fires, the importance of recognizing the conditions associated with hidden fires, and the importance of taking immediate and aggressive action to gain access to and aggressively combat in-flight fires. The video demonstrates effective actions for combating in-flight fires, including crew coordination and the application of fire extinguishing agents. The video is available at the following public website: http://www.fire.tc.faa.gov/2007Conference/files/Training_Videos/ThursPM/Videos/BlakeFirefightingVideo1.wmv.

Recommended Action: Directors of operations, directors of safety, chief pilots, training managers and training centers should consider incorporating this video into crewmember emergency training. When tailored to a specific aircraft and operator procedures, the suggested actions presented in this video provide a good framework for combating in-flight fires. However, approved manufacturer's procedures and company procedures should still take precedence over the information presented in the video.

The importance of crewmembers taking immediate and aggressive action to locate the source, gain access, and effectively apply extinguishing agents to hidden fires cannot be overstressed.

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