SAFO

Safety Alert For Operators

U.S. Department
of Transportation

**Federal Aviation
Administration**

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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.

SUBJECT: In-Flight Fires Caused by Lithium Ion and Lithium Battery Failures

Purpose: This SAFO alerts operators of the potential for in-flight fires resulting from lithium ion and lithium battery failures caused by internal short-circuiting and rapid internal temperature rise.

Background: Since the original issuance of SAFO 05008 there have been several occurrences of smoke and fires erupting from failures of lithium-ion batteries such as those used within laptop computers. A more recent incident involving a lithium battery powered portable air purifier which caught fire resulting in injuries to several passengers and diversion of the flight. The NTSB is investigating this incident. Such batteries tend to electrically short and quickly overheat when rapid discharging or unregulated charging occurs. One prominent battery manufacturer, recently highlighted in the media, produces a "regulated" battery type that has been subjected to recalls after several cases where battery failures caused fires. Other battery manufacturers, who produce "unregulated" batteries which provide higher capacity (such as those used in cameras, electronic games, medical equipment, flashlights, air purifying devices, etc.), are not necessarily aware of their vulnerabilities. Thus, the probability for such battery failures resulting from overheating caused by rapid discharging is higher with unregulated types in greater number of uses.

Discussion: On January 8, 2004 the FAA issued Advisory Circular (AC) 120-80, In-Flight Fires, which discusses the dangers of, and how to deal with, in-flight fires, particularly hidden fires that may not be visible or easily accessed by the crew. The AC emphasizes the importance of crewmembers taking immediate and aggressive action in response to signs of an in-flight fire while stressing the effectiveness of Halon extinguishing agents. In addition, the AC discusses the importance of appropriate crewmember training in dealing with hidden or other fires. Crewmembers should be aware that the potential for smoke emission and fire propagation from high-energy batteries, of any kind, can result from internal short-circuit failures.

Recommended Action: Directors of safety, directors of operations, chief pilots, training managers, and crewmembers of passenger-carrying airplanes under 14 Code of Federal Regulations (14 CFR) parts 91, 121, 125, 129, and 135 should be aware of the potential hazard described in this SAFO and should apply the practices of AC 120-80. Operators are reminded to follow their established procedures in contacting their local FAA Flight Standards District Office or their Certificate Management Office to report any incidents of in-flight fires occurring during its operations. Advisory Circular 120-80, In-Flight Fires, may be found at: http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/ed51f1681e9d8c5e86256e4a00744607/$FILE/AC120-80.pdf

Approved by: AFS-200