

Aviation technology advances, US tries to keep up

January 20 2013, by David Koenig



In this Jan. 17, 2013 file photo, a line of 787 jets are parked at Paine Field in Everett, Wash. After two separate and serious battery problems aboard Boeing 787s, it wasn't U.S. authorities who acted first to ground the plane. It was Japanese airlines. The unfolding saga of Boeing's highest-profile plane has raised new questions about federal oversight of aircraft makers and airlines. (AP Photo/Elaine Thompson, file)

(AP)—The battery that caught fire in a Japan Airlines 787 in Boston last week was not overcharged, but U.S. investigators said Sunday there could still be problems with wiring or other charging components.

An examination of the flight data recorder indicated that the [battery](#) didn't exceed its designed voltage of 32 volts, the [National](#)

[Transportation Safety Board](#) said in a statement.

But NTSB investigators are continuing to look at the battery system. They plan to meet Tuesday with officials from Securaplane Technologies Inc., manufacturer of the charger for the 787s lithium ion batteries, at the company's headquarters in Arizona, said Kelly Nantel, a spokeswoman for the board.

"Potentially there could be some other charging issue," Nantel said. "We're not prepared to say there was no charging issue."

The unfolding saga of Boeing's highest-profile plane has raised new questions about federal oversight of aircraft makers and airlines. After two separate and serious battery problems, it wasn't U.S. authorities who acted first to ground the plane. It was Japanese airlines.

Some aviation experts question the ability of the [Federal Aviation Administration](#) to keep up with changes in the way planes are being made today—both the technological advances and the use of multiple suppliers from around the globe. Others question whether regulators are too cozy with aircraft manufacturers.

A week ago, FAA Administrator Michael Huerta and Transportation Secretary Ray LaHood endorsed the Dreamliner's safety even as they ordered a new review of its design and construction following the fire in a [lithium-ion battery](#) on the 787 that had landed in Boston.

But on Wednesday, after a battery malfunction on a second plane resulted in an emergency landing, they grounded Dreamliner flights in the U.S.

The Dreamliner is the first airliner whose structure is made mostly from composite materials rather than aluminum. The plane relies more than

previous airliners on electrical systems rather than hydraulic or mechanical ones, and it's the first airliner to make extensive use of lithium-ion batteries to power cabin-pressurization and other key functions.

Such technological advances may force the FAA to re-examine the way it does its job.

"We've gone from aviation to aerospace products that are much more complex," said Richard Aboulafia, an aviation analyst with the Teal Group. "The FAA is equipped for aviation. Aerospace is another matter."

Former NTSB board member Kitty Higgins said the FAA must consider whether changes in its certification process would have turned up the problems in the Dreamliner battery systems.

"They need to make sure the certification process stays current with the industry and the new technology," she said.

Too much current flowing too fast into a battery can overwhelm the battery, causing it to short-circuit and overheat even if the battery's voltage remains within its design limit, said John Goglia, a former NTSB board member and aviation safety expert.

There are so many redundancies and safeguards in aviation that when an accident or mishap occurs it almost always is the result of a chain of events rather than a single failure, Goglia said.

The batteries in two incidents "had a thermal overrun because they short-circuited," he said. "The question is whether it was a manufacturing flaw in the battery or whether it was induced by battery charging."

Despite their concerns, many safety experts still believe that the current regulatory process works. The 787s were grounded before any accidents occurred.

An FAA spokeswoman declined to comment for this article, referring instead to statements made during a news conference last week. Officials said then that the review of the 787 wouldn't be limited to the Dreamliner's batteries. Huerta said that the agency would "make sure that the approved quality control procedures are in place and that all of the necessary oversight is done."

The FAA has said that its technical experts logged 200,000 hours testing and reviewing the plane's design before certifying the plane in August 2011. Boeing defended the process and the plane.

"We are confident in the regulatory process that has been applied to the 787 since its design inception," said Boeing Co. spokesman Marc Birtel. "With this airplane, the FAA conducted its most robust certification process ever."

In certifying new planes, the FAA relies heavily on information from the manufacturers. That system has worked—the U.S. commercial airline fleet is safer than ever—but it is coming under renewed scrutiny after the 787 incidents.

Experts say that FAA officials have no choice but to rely on information from aircraft manufacturers as key systems of the plane are designed and built.

"As a practical matter, they can't do the testing," said longtime aviation consultant Daniel Kasper of Compass Lexecon. "They don't have the expertise in aircraft design, and they don't have the budget—it would be too costly. They would have to be involved in every step."

Thomas Anthony, director of the aviation-safety program at the University of Southern California, said many new planes have flaws that are only discovered once they go into service, and that the regulatory process worked the way it was supposed to with the Dreamliner.

"The FAA used to be accused of 'blood priority'" —acting only after a disaster, Anthony said. "In this case, it's not true. The regulators are taking their job seriously. There were no accidents, there were no injuries, there were no fatalities."

That has not always been the case. In 1979, authorities grounded the McDonnell Douglas DC-10 for five weeks after an engine tore loose from the wing of an American Airlines plane, causing a crash that killed 273 in Chicago. And there were other incidents that occurred after the DC-10 was introduced in 1971, including cargo-door problems that forced one emergency landing and caused a Turkish Airlines crash that killed 346 in 1974.

Boeing, based in Chicago, is racing to find a fix to the Dreamliner's battery systems and get the planes back in the air. It is still producing 787s but has stopped delivering them to customers.

Bloomberg News reported that Boeing has tried to persuade FAA to end the groundings by proposing a variety of inspections and having pilots monitor electronic signals from the batteries to prevent fires. The FAA has been reluctant to approve those steps without a clear idea of what caused the defects and how they can be prevented.

Copyright 2013 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.

Citation: Aviation technology advances, US tries to keep up (2013, January 20) retrieved 11 May 2024 from <https://phys.org/news/2013-01-aviation-technology-advances.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.