Always Fit to Fly

New Boeing Maintenance Service will Monitor Airplane Health in Flight

Time is money in any business, but especially in the aviation industry. At an airline, the dollars can add up quickly when a $100-million airplane unexpectedly sits idle, even for a short period of time.

With Airplane Health Management -- a new service provided by Boeing Commercial Aviation Services -- the health of an airplane is monitored in flight and information relayed in real time to airline personnel on the ground. When an airplane arrives at the gate, maintenance crews are ready to make any needed repairs quickly.
To help airlines reduce flight delays, cancellations, air turn-backs and diversions, The Boeing Company is introducing a new service, Airplane Health Management, or AHM. AHM monitors the health of an airplane in flight and relays that information in real time from the air to the ground. When the airplane arrives at the gate, maintenance crews are ready to make any needed repairs quickly.

"With Airplane Health Management, airlines will be able to identify problems long before an airplane lands," said Lou Mancini, vice president of Maintenance Services in Boeing Commercial Aviation Services. "Airline personnel will have time to review maintenance procedures, assemble necessary parts and be waiting for the airplane when it arrives."

The new service also allows airlines to realize efficiencies in their operations and provide a superior experience for their passengers, Mancini added.

How AHM works

Airplane Health Management collects data from the airplane in real-time. The primary source of the data is the airplane central maintenance computer or condition monitoring system. AHM also can collect electronic logbook data from the new Electronic Flight Bag (which Boeing is introducing on the 777-300ER).

AHM continually integrates incoming data from each airplane with basic model design data, in-service experiences reported by airplane operators and industry-wide fleet-performance data for that airplane model.

"The original equipment manufacturer is best-positioned to offer such comprehensive analysis," Mancini said. "We can look across a database wider than that of any specific airline."

If there is a problem with a particular airplane in flight, AHM notifies airline personnel via the Internet or by pager. The notification directs the airline to the Boeing business-to-business Web portal, MyBoeingFleet.com, for flight-specific information that they can use to make informed maintenance decisions.

In addition to diagnosing an airplane problem in flight, AHM also can be used to predict when parts might fail, so that they can be replaced or repaired during a regularly scheduled maintenance check as a preventive measure, rather than at an inconvenient time or place when a part fails unexpectedly.

"Basically, we're providing a single source of information from which airlines can make maintenance decisions and identify trends to support long-term fleet reliability programs," Mancini said. "AHM is both a diagnostic and a prognostic tool."

Another feature of AHM is that it's not limited to just Boeing airplanes. According to Mancini, "We can provide portions of this service for other commercial airplanes, not just our own."

In development

Throughout the year, Boeing will be piloting the Airplane Health Management service to ensure availability to airlines in first-quarter 2004. In April, Boeing selected Air France and American Airlines to test the AHM service. A third development partner from the Asia-Pacific region will be announced later this year. The development partners already have helped define the "look and feel" of the AHM tool, and beginning in third-quarter 2003 they will help refine the exact functionality of the service.

"These airlines bring 'real life' to our product-development efforts," said Mancini. "Their input will be invaluable as we test our AHM service and strive to make it the best it can be for our airline customers."

Boeing selected the development partners based on the intellectual equity that they bring to the development process. Factors included geographic location, fleet size and a willingness to be involved in product development.

Available in 2004

Boeing is offering the Airplane Health Management service to airlines in three releases:

- Release 1.0 will involve the reporting of fault data from the airplane central-maintenance computer. Available in first-quarter 2004, the first release will apply to 777, 747-400, A320 family, A330 and A340 airplanes.
- Release 2.0 will use "snapshots" of systems in operation from the airplane condition monitoring system. Available in third-quarter 2004, the second release will apply to the same airplane models as Release 1.0, plus the 757, 767 and Next-Generation 737.
- Release 3.0, due out in 2005, will use a continuous stream of data taken during an entire flight. This last release will require a very high bandwidth delivery method, such as that offered by Connexion by Boeing. It will be available on the same airplane models as the second release.

"We're very excited about being able to offer AHM to airlines," said Mancini. "AHM is a unique opportunity to leverage Boeing's vast technological resources and airplane knowledge to provide substantial value to airplane operators. It will increase their operational efficiency and reduce their costs."

Airplane Health Management is part of a growing family of information technology offerings from Boeing Commercial Aviation Services. Other Boeing Enterprise One products include a maintenance management software system specifically tailored to the air transport industry; a software module called Allowable Configuration Manager that centralizes configuration management via a Web-browser-based illustrated parts catalog and provisioning files; and an expanding document management system that currently includes the Boeing Portable Maintenance Aid and Boeing Digital Technical Documents.

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