Japan Transport Safety Board

The response from the FAA to the safety recommendation of JA767B serious incident

The Japan Transport Safety Board received the response from the Federal Aviation Administration (FAA) of the United States of America to the safety recommendation issued on Jan. 23, 2009 as attached regarding a serious incident of JA767B (Boeing 767-300) operated by Skymark Airlines at Kagoshima Airport on Dec. 1, 2005.

The FAA determined that mandatory corrective action is not warranted, as the result of evaluations conducted in line with the purpose of the safety recommendation.

The Board asked the FAA for clarification on the point that the FAA concurs that the design of the fire detection system on the Boeing Model 767 does not meet the standard established by the FAA. And the FAA replied that the FAA determined that such nonconformity poses no threat to the safety of aircraft, therefore, the current designs cause no airworthiness problems.

JTSB safety recommendation to the FAA

The Japan Transport Safety Board, after having reviewed this serious incident, recommends that the Federal Aviation Administration (FAA) of the United States of America examine the following item of all the General Electric CF6-80C2 series engines and take necessary measures.

"Realignment of the engine fire detector locations"

In this serious incident, after the aircraft took off, the fire warning of the right engine, where flame had started, did not activate even when a significant area of the right engine core cowl melted, and it took more than about one minute and 30 seconds before the fire warning activated.

The airworthiness standard (FAR25.1203(a)) specifies that numbers and locations of fire detectors ensure prompt detection of fire in each designated fire zone.

However, in the case of this serious incident, judging from the extent of the damage to the core cowl, it is difficult to say that fire was "detected promptly" as set forth in the standard.

Therefore, the designers and manufacturers of the aircraft should examine numbers and locations of fire detectors to ensure prompt detection of a fire in an engine designated fire zone.

U.S. Department
of Transportation
Federal Aviation
Administration

JAN 25 2010

Chairman Norihiro Goto
Japan Transport Safety Board
2-1-2 Kasumigaseki, Chiyoda-Ku, Tokyo (100-8918)
Japan

Dear Chairman Goto:

This letter is in response to a safety recommendation submitted by the Japan Transport Safety Board (JTSB) as a result of its investigation of a December 1, 2005 incident involving an engine fire on Skymark Airlines Flight 306, a B-767-300.

As a result of the recommendation, the Federal Aviation Administration (FAA) evaluated this request and examined the General Electric (GE) CF6-80C2 engine installations, with respect to the numbers and locations of fire detectors, for the Boeing Model 747 and Model 767 airplanes and the Boeing (formerly Douglas) Model MD-11 airplanes.

Boeing Model 767 Airplanes (Incident Airplane Type)

We concur that the design of the fire detection system does not meet the standard established by 14 CFR § 25.1203. The FAA has conducted additional evaluations to determine if mandating corrective action is warranted.

In the Skymark event, the spray created by the fuel leak was very directional and happened to be directed through a relatively small gap between the ends of two detectors, delaying the fire detection. While the incident fire caused significant damage to the engine cowl, we determined the delay in detecting this fire did not constitute an unsafe condition. We also determined that anticipated fires in the same area of the nacelle that might also result in delayed detection would not present a hazard to the aircraft. The combination of the location of the detector gap on the side of the engine, the location of the nacelle under the wing, the engine fan airflow pattern expected while the engine is running, the fact that an engine shutdown would depressurize the flammable fluid leak source, and the expected limited duration of the fire even with delayed detection, ensure that the airplane could complete a flight safely in the event of such a fire.

Boeing Model 747 Airplanes

The numbers and locations of fire detectors in the GE CF6-80C2 engine installation on the Boeing Model 747 are the same as for the GE CF6-80C2 engine installation on the Boeing Model 767. The engine struts on the Boeing Model 747 provide a greater distance between the engine fire zones and the wing than exists on the Boeing Model 767. Therefore, the analysis of

the Boeing Model 767 is valid for the Boeing Model 747 in this case and no mandatory corrective action is warranted.

Boeing Model MD-11 Airplanes

We reviewed the numbers and locations of fire detectors in the GE CF6-80C2 engine installation on the Boeing Model MD-11 airplanes. We found that the fire detection installation has similarities to the Boeing Model 767 design. However, we determined that the overall design of the fire protection meets the intent of the regulations with respect to timeliness of the detector response and cowl fire resistance. Therefore, we determined that mandatory corrective action is not warranted because no unsafe condition exists in the approved design.

We believe that our evaluation is satisfactory and meets the intent of the JTSB's safety recommendation, and we plan no further action.

We thank the Japan Transport Safety Board for assisting in promoting aviation safety, and we look forward to continued cooperation between our two countries.

Sincerely,

(Original signed)

Tony Fazio
Director, Office of Accident Investigation