



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 8, 2009

In reply refer to: A-09-54

Mr. John Graber
President, ABX Air, Inc.
145 Hunter Drive
Wilmington, Ohio 45177

The National Transportation Safety Board (NTSB) is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents in the future. We are providing the following information to urge your organization to take action on the safety recommendation in this letter. The NTSB is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

This recommendation, which addresses ABX Air's continuing analysis and surveillance program (CASP), was derived from the NTSB's investigation of the June 28, 2008, aviation accident at San Francisco International Airport (SFO), San Francisco, California, and was consistent with the evidence we found and the analysis we performed. As a result of this investigation, the NTSB has issued 12 safety recommendations, one of which is addressed to ABX Air. Information supporting the recommendation is discussed below. The NTSB would appreciate a response from you within 90 days describing the actions you have taken or intend to take to implement our recommendation.

On June 28, 2008, about 2215 Pacific daylight time, an ABX Air Boeing 767-200, N799AX, operating as flight 1611 from SFO, experienced a ground fire before engine startup. The captain and the first officer evacuated the airplane through the cockpit windows and were not injured, and the airplane was substantially damaged. The cargo flight was operating under the provisions of 14 *Code of Federal Regulations* Part 121. At the time of the fire, the airplane was parked near a loading facility, all of the cargo to be transported on the flight had been loaded, and the doors had been shut.

The NTSB determined that the probable cause of this accident was the design of the supplemental oxygen system hoses and the lack of positive separation between electrical wiring and electrically conductive oxygen system components. The lack of positive separation allowed a short circuit to breach a combustible oxygen hose, release oxygen, and initiate a fire in the supernumerary compartment that rapidly spread to other areas. Contributing to this accident was the Federal Aviation Administration's (FAA) failure to require the installation of nonconductive

oxygen hoses after the safety issue concerning conductive hoses was initially identified by Boeing.¹

Continuing Analysis and Surveillance Program

ABX Air's CASP provided surveillance and analysis of the company's continuous airworthiness maintenance program (CAMP). The CASP had two program components: quality assurance and reliability. The reliability program component included trend analysis. As part of this program, ABX Air's reliability department issued company advisory notices, via e-mail, to alert maintenance control personnel of repetitive airplane discrepancies. These notices were generated when three defects were noted within 15 days, five defects were found within 30 days, or one or more defects were found within 2 days of a notice's closing date. Maintenance records showed that four company advisory notices were issued—in September and November 2007 and February and April 2008—for the accident airplane's oxygen system.

To resolve repetitive aircraft discrepancies identified by advisory notices, ABX Air's reliability department held weekly meetings with other company aircraft maintenance departments and usually a member of the FAA principal maintenance inspector's (PMI) staff. At these meetings, personnel reviewed the notices; discussed previous and current corrective actions; and, if warranted, identified a more in-depth action plan to correct a chronic discrepancy. A review of the notes from the meetings during which the four advisory notices were discussed revealed that the oxygen system discrepancies on the accident airplane were being tracked and discussed but that some discrepancies listed no specific action items to resolve them. The NTSB is concerned that, even with four advisory notices within 7 months for the accident airplane's oxygen system, ABX Air did not develop a specific action plan for fully resolving repetitive maintenance issues on the accident airplane.²

As part of the reliability department's weekly meetings, ABX Air would determine if any chronic issues were affecting the airplanes in its fleet based on the advisory notices that had been issued during a rolling 3-month period. This approach, however, did not allow ABX Air to adequately track all of the oxygen-related discrepancies on the accident airplane because the advisory notices issued in September and November 2007 were not considered with the advisory notices issued in February and April 2008. Although the September and November 2007 advisory notices were reviewed as part of the same rolling 3-month review period, as were the February and April 2008 advisory notices, the number of discrepancies considered during those separate reviews did not result in the airplane being taken out of service because of a chronic problem. However, it is possible that ABX Air could have recognized a chronic problem with the oxygen system if the company had considered the total number of discrepancies that had accumulated, and the number of advisory notices that were issued, during the 7-month period from September 2007 to April 2008.

¹ For more information, see *Ground Fire Aboard Cargo Airplane, ABX Air Flight 1611, Boeing 767-200, N799AX, San Francisco, California, June 28, 2008*, Aircraft Accident Summary Report NTSB/AAR-09/04/SUM (Washington, DC: NTSB, 2009).

² In its report on this accident, the NTSB concluded that no evidence was found to indicate that previous oxygen system leaks contributed directly to the fire in the supernumerary compartment but that oxygen leaks were a safety hazard because of their potential to facilitate a fire.

On June 25, 1990, the NTSB issued Safety Recommendations A-90-98 and -99 after an October 1989 ground fire aboard Delta Air Lines flight 1558, a Boeing 727 that had been parked at the gate at Salt Lake City International Airport, Salt Lake City, Utah. At the time of the fire, a mechanic had been servicing the passenger oxygen system. Safety Recommendations A-90-98 and -99 asked the FAA to do the following:

Review airline maintenance-related trend-analysis programs to verify that such programs can detect leaking oxygen systems. (A-90-98)

Require air carriers to perform a one-time inspection of the oxygen systems on their airplanes and promptly repair all leaks. (A-90-99)

On August 17, 1992, the FAA stated that it issued Notice 8300.85, “Servicing and Maintaining Oxygen Systems on Air Carrier Aircraft While Passengers Are Aboard.” The notice asked PMIs to ensure that each operator had structured its maintenance program so that the program is able to detect leaks in aircraft oxygen systems. The notice also called for the time between oxygen system inspection intervals to be decreased or for the performance of a one-time inspection of oxygen systems. In addition, the notice required PMIs to ensure that each operator’s FAA-approved CAMP was structured to detect and repair leaking oxygen systems on a continuing rather than a singular basis. On March 4, 1993, the NTSB classified Safety Recommendation A-90-98 “Closed—Acceptable Action” and Safety Recommendation A-90-99 “Closed—Acceptable Alternate Action.”

FAA Notice 8300.85 expired after 1 year. Nevertheless, an air carrier’s CAMP should continuously detect and repair leaks on airplane oxygen systems, and a carrier’s continuing analysis and surveillance system program should effectively analyze maintenance trends to ensure, among other things, that repetitive oxygen leaks are not occurring. However, the procedures in place for ABX Air’s CASP at the time of the accident recognized only those maintenance problems that had recurred within a specific 3-month period. ABX Air stated that it now reviews 12 months, rather than 3 months, of discrepancies to determine if any chronic issues are affecting the airplanes in its fleet.

ABX Air had 42 Boeing 767 airplanes (including the accident airplane) in its fleet, 16 of which needed oxygen system servicing (for routine maintenance of the oxygen system and for reported discrepancies) during the 6-month period from January to June 2008. A review of the maintenance records for each of these 16 airplanes showed that the accident airplane had about three times more oxygen system service discrepancies than the airplane with the next highest amount (23 versus 8, respectively). The NTSB concludes that the number of reported discrepancies regarding the accident airplane’s oxygen system was excessive and indicative of a chronic problem with the system, yet ABX Air’s CASP did not include adequate actions for resolving the discrepancies and preventing additional oxygen leaks from occurring.

Therefore, the National Transportation Safety Board recommends that ABX Air:

Modify your continuing analysis and surveillance program so that all identified chronic discrepancies, such as those affecting the oxygen system on the accident airplane, are effectively resolved. (A-09-54)

The NTSB has also issued recommendations to the FAA. In response to the recommendation in this letter, please refer to Safety Recommendation A-09-54. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: correspondence@ntsb.gov. If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our Tumbleweed secure mailbox procedures. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Acting Chairman ROSENKER and Members HERSMAN, HIGGINS, and SUMWALT concurred with this recommendation.

[Original Signed]

By: Mark V. Rosenker
Acting Chairman