National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: June 25, 1998

In reply refer to: A-98-41 through -42

Honorable Jane F. Garvey
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On April 28, 1997, at 1222 mountain standard time, American Airlines flight 230, a McDonnell Douglas MD-82, sustained a left engine turbine section fire and tailpipe fire shortly after takeoff from the Tucson International Airport, Tucson, Arizona. The flight was operating in visual flight rules conditions under Title 14 Code of Federal Regulations (CFR) Part 121 as a scheduled domestic passenger flight from Tucson to Dallas-Fort Worth, Texas. The 5 crewmembers and 118 passengers sustained no injuries.

The captain stated that he heard a loud bang as the aircraft was climbing through 1,800 feet, and the left engine "spooled down." A left engine fire extinguisher bottle was activated to control the fire, and the engine was secured. The flight returned and landed on runway 29R. As airport rescue and firefighting (ARFF) personnel extinguished a fire in the left engine tailpipe, the flightcrew attempted to contact them on the ground control frequency. By the time radio contact was made, approximately 16 passengers had exited the aircraft via the forward left door slide, and several other passengers had climbed onto the right wing to evacuate. The flight attendant stated that she saw firetrucks and firemen outside the cabin door and one fireman "gave me the thumbs up, then I proceeded to open the door." The firefighter stated that he gave the "thumbs up" hand signal to stop the evacuation. The ARFF personnel stopped the passengers from evacuating the aircraft and directed them back inside the airplane. The remaining passengers eventually deplaned using portable stairs.

During a debriefing session of the incident, ARFF personnel determined that the evacuation of this aircraft was not necessary and that the aircraft could have been safely towed to a gate. The passengers could have safely deplaned at that point. During the discussions, ARFF personnel stated that if they had a direct means of communicating with the flightcrew, unnecessary evacuations such as this one could be avoided.

On July 8, 1996, about 0741 central daylight time, Southwest Airlines flight 436, a Boeing 737-200, N53SW, received minor damage during a rejected takeoff (RTO) from runway

20C at the Nashville Metropolitan Airport, Nashville, Tennessee. The airplane was operated as a regularly scheduled domestic passenger flight under the provisions of 14 CFR Part 121. The airplane stopped approximately 750 feet off the departure end of runway 20C, about 100 feet east of the extended centerline. The 5 crewmembers and 122 passengers evacuated using the emergency slides. One passenger received serious injuries, and four passengers received minor injuries during the emergency evacuation.

After completing the emergency checklist and announcing over the public address system that the passengers should remain seated, the captain saw that the fire department equipment had arrived. The captain and the ARFF on-scene supervisor established voice communications through the captain's open cockpit window. The ARFF supervisor reported to the captain that the tires were smoking and deflating. The right main landing gear ignited and was immediately extinguished with foam. After hearing a fire warning and without determining the location or severity of the fire, the flight attendants initiated an aircraft evacuation. During the evacuation, the left main landing gear ignited and was immediately extinguished. Although the flightcrew was able to communicate with the ARFF personnel through the open cockpit window, the Nashville Metropolitan Airport Authority determined that a designated radio frequency might have allowed the ARFF personnel to advise the flightcrew about the situation in a more timely manner. Therefore, the flightcrew might have been able to coordinate with the flight attendants and prevent an evacuation. As a result of this accident, a designated frequency was assigned for use during accidents and incidents at the Nashville airport.

Eight major airports in the United States have instituted a designated frequency for emergency use.[1] On June 19, 1996, Delta Air Lines flight 229, a Boeing 767-332, returned to the Salt Lake City Airport, Salt Lake City, Utah, after the flightcrew detected a fire in the right engine; although the fire was still burning, ARFF personnel and the flightcrew decided not to evacuate the airplane while ARFF members extinguished the fire. Although before this incident the Salt Lake City Airport did not have a designated frequency, the ground controller provided the flightcrew and ARFF personnel a discrete frequency on which to communicate that resulted in improved emergency response. The flightcrew was able to taxi the aircraft to a gate under the airplane's own power. The passengers and crew sustained no injuries.

The Tucson and Nashville incidents illustrate the need for flightcrews and ARFF personnel to have the ability to communicate with each other directly. A designated radio frequency allows ARFF personnel to issue critical information concerning the exact nature of, and hazards associated with, an emergency in progress. Consequently, the Safety Board believes that the FAA should establish a designated radio frequency at all airports certified under Title 14 CFR Part 139 that allows direct communication between ARFF personnel and flightcrew members in the event of an emergency and take appropriate measures to ensure that air traffic control personnel, ARFF personnel, and pilots are aware of its designation.

[1] The airports are located in Covington/Cincinnati, Ohio (CVG); Honolulu, Hawaii (HNL); Seattle, Washington (SEA); Nashville, Tennessee (BNA); Los Angeles, California (LAX); Fort Lauderdale, Florida (FLL); Philadelphia, Pennsylvania (PHL); and Boston, Massachusetts (BOS).

The Safety Board is also concerned that ARFF personnel may not be able to communicate with a flightcrew if power is lost or if the flightcrew must abandon the cockpit. Following RTOs and emergency landings, flightcrews may shutdown the airplane's electrical power, rendering two-way radio communications ineffective. Consequently, the Safety Board believes that the FAA should develop a universal set of hand signals for use between ARFF personnel and flightcrews and flight attendants for situations in which radio communication is lost.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Establish a designated radio frequency at all airports certified under Title 14 CFR Part 139 that allows direct communication between airport rescue and firefighting (ARFF) personnel and flightcrew members in the event of an emergency and take appropriate measures to ensure that air traffic control personnel, ARFF personnel, and pilots are aware of its designation. (A-98-41)

Develop a universal set of hand signals for use between airport rescue and firefighting personnel and flightcrews and flight attendants for situations in which radio communication is lost. (A-98-42)

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

By: Jim Hall
Chairman