

NTSB Recommendation A-84-077

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Rec #: A-84-077

NTSB Status: Closed - Unacceptable Action

Issue date: 7/12/1984

Accident Date: 6/2/1983

Source Event: ACCIDENT

Location: CINCINNATI Ohio

Mode: AVIATION

Most Wanted List: No

Closed date: 5/12/1986

Report Number: AAR-84-09

Accident ID: DCA83AA028

Background Synopsis:

THE NATIONAL TRANSPORTATION SAFETY BOARD HAS COMPLETED ITS INVESTIGATION OF THE ACCIDENT INVOLVING AIR CANADA FLIGHT 797, WHICH OCCURRED ON JUNE 2, 1983, WHEN AN IN-FLIGHT FIRE FORCED THE FLIGHTCREW OF THE MCDONNELL DOUGLAS DC-9 AIRPLANE TO MAKE AN EMERGENCY LANDING AT THE GREATER CINCINNATI AIRPORT. UPON LANDING, A FLASH FIRE OCCURRED IN THE CABIN. THE FIVE CREWMEMBERS AND 18 PASSENGERS WERE ABLE TO EVACUATE THE BURNING CABIN; THE REMAINING 23 PASSENGERS DIED IN THE FIRE. THE SAFETY BOARD'S INVESTIGATION HAS DETERMINED THAT THE FIRE PROPAGATED THROUGH THE AIRPLANE'S LEFT REAR LAVATORY, BUT WAS UNABLE TO IDENTIFY POSITIVELY THE SOURCE OF IGNITION. THE SAFETY BOARD WAS NOT ABLE TO DETERMINE THE EXTENT TO WHICH THE FLIGHTCREW'S DELAY IN INITIATING AN EMERGENCY DESCENT FOR LANDING CONTRIBUTED TO THE ACCIDENT AT STANDIFORD FIELD, LOUISVILLE, KENTUCKY, ABOUT 3 TO 5 MINUTES SOONER THAN THE LANDING AT CINCINNATI. THE SHORTENED EXPOSURE TIME OF THE PASSENGERS TO THE TOXIC ENVIRONMENT IN THE CABIN WOULD UNDOUBTEDLY HAVE MEANT LESS DEGRADATION OF THEIR PHYSICAL AND MENTAL CAPACITY AND WOULD HAVE ENHANCED THEIR CHANCES OF SUCCESSFULLY LEAVING THE CABIN BEFORE IT WAS CONSUMED BY FIRE.

Recommendation:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REQUIRE THAT AIRPLANE FLIGHT MANUALS, AIR CARRIER FLIGHT OPERATIONS MANUALS, AND FLIGHT ATTENDANT MANUALS BE AMENDED TO INCLUDE COMPREHENSIVE DISCUSSIONS AND ILLUSTRATIONS SHOWING THE PROPER USE OF A FIRE AX AND THE LOCATIONS IN EACH MODEL OF AIRCRAFT OPERATED WHERE A FIRE AX CAN BE USED SAFELY TO GAIN ACCESS TO A FIRE OR SMOKE EMISSION SOURCE.

Correspondence:

Response Date: 11/2/1984 From: Addressee

Response:

FAA LETTER: THE REQUIREMENT FOR CARRIAGE OF A "CRASH AX" (14 CFR 121.309(E)) WAS EMBODIED INTO THE OPERATING REGULATIONS MANY YEARS AGO FOR THE PURPOSE OF FACILITATING EMERGENCY EGRESS FROM UNPRESSURIZED CRASHED AIRPLANES IN THE EVENT OF JAMMED EXITS. IT WAS NOT, AND PRESENTLY IS NOT, INTENDED FOR THE BATTERING OF AIRCRAFT INTERIORS IN FLIGHT. THE SPACES BETWEEN TRANSPORT AIRPLANE FUSELAGE SHELLS AND THEIR PASSENGER COMPARTMENT

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PANELS, AS WELL AS NEAR AND AROUND LAVATORIES, GALLEYS, COAT CLOSETS, ETC., ARE EXTENSIVELY FITTED WITH ELECTRICAL DISTRIBUTION SYSTEMS AND WIRE BUNDLES, PNEUMATIC AND OXYGEN PIPING, AND FLIGHT OR PROPULSION SYSTEM CONTROL CABLES. MANY OF THESE INSTALLATIONS ARE EITHER FLIGHT-ESSENTIAL OR WOULD PRESENT ADDITIONAL HAZARDS IF SEVERED. THE ROUTING OF THE INSTALLATIONS MAY VARY WITHIN FLEETS DUE TO MODIFICATIONS AND OPERATOR EQUIPMENT OPTIONS. AN INADVERTENT AX STRIKE THROUGH FUSELAGE STRUCTURE COULD CAUSE PRESSURE VESSEL RUPTURE LEADING TO DEPRESSURIZATION WITH ATTENDANT FIRE/ SMOKE CONTROL DIFFICULTIES. ACCORDINGLY, THE FAA BELIEVES THAT AMENDMENT OF AIRPLANE FLIGHT MANUALS IN ACCORDANCE WITH THIS RECOMMENDATION WOULD BE INAPPROPRIATE AND IMPRACTICABLE. INSTEAD, EMPHASIS SHOULD BE PLACED ON FLIGHTCREW AND FLIGHT ATTENDANT TRAINING ON APPROVED FIRE/SMOKE CONTROL PROCEDURES, HANDS-ON TRAINING ON DORNING OF PBE, SMOKE GOGGLES, OPERATION OF FIRE SOURCES (E.G., GALLEY OVENS, WASTE CONTAINERS, FLUORESCENT LAMP BALLASTS, ETC.), AND NONDESTRUCTIVE MEANS OF ACCESS TO THESE AREAS.

Response Date: 4/12/1985 From: NTSB

Response:

The Safety Board is aware of the hazards involved in using a fire ax on aircraft interiors while in flight and certainly does not advocate their indiscriminate use by untrained crewmembers. However, the Air Canada accident has shown the tragic results of not attacking the source of a fire directly even after it becomes clear that the initial efforts have not been successful. The Safety Board believes that some areas which have a history as potential fire sources, such as galleys and lavatories, contain panels that can be penetrated without real risk. It was not the Safety Board's intent that cabin crews should be trained or allowed to use fire axes on all sections of the aircraft interior; rather, the Safety Recommendation urges that training be provided which would prepare the aircraft crew to fight a fire at its source without further endangering the aircraft. Marking interior panels that can be safely penetrated would be an adjunct to the training. The Safety Board urges the FAA to conduct studies of aircraft structures to identify panels in galleys and lavatories which can be penetrated safely in an emergency. The Board believes that even a small hole in a panel could provide access to a hidden fire so that it could be extinguished. We recognize that modifications of individual airplanes could affect the areas available for penetration. However, as major modifications are made under FAA approval procedures, the effect of the changes could be evaluated beforehand. The Safety Board requests that the FAA reconsider its position concerning these two recommendations. Pending further response, Safety Recommendations A-84-77 and -78 have been classified as "Open--Unacceptable Action." The opportunity to cordially discuss matters of aviation safety is appreciated.

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Response Date: 3/7/1986 From: Addressee

Response:

THE FAA BELIEVES THAT THE AMENDMENT OF AIRPLANE FLIGHT MANUALS IN ACCORDANCE WITH A-84-77 WOULD BE INAPPROPRIATE AND IMPRACTICAL. IT IS NOT CONSIDERED FEASIBLE TO MARK PANELS WHICH CAN BE SAFELY PENETRATED WITH A CRASH AX AS RECOMMENDED. I BELIEVE EMPHASIS IS ADEQUATE ON THE FOLLOWING: FLIGHTCREW AND FLIGHT ATTENDANT TRAINING ON APPROVED FIRE/SMOKE CONTROL PROCEDURES, HANDS-ON TRAINING ON DONNING OF PROTECTIVE BREATHING EQUIPMENT, SMOKE GOGGLES, AND OPERATION OR EXTINGUISHERS, IDENTIFICATION AND LOCATION OF PROBABLE FIRE SOURCES, AND NONDESTRUCTIVE MEANS OF ACCESS COUPLED WITH LANDING THE AIRPLANE AS SOON AS POSSIBLE.

Response Date: 5/12/1986 From: NTSB

Response:

The Safety Board is well aware of the potential hazards involved in the indiscriminate use of a fire ax on the interior wall panels of an aircraft in flight. However, the Safety Board continues to believe that there are areas that could be safely penetrated without risk to the aircraft if these areas were appropriately marked and cabin crews adequately trained. Even a small hole in a panel might provide access to fire that could not otherwise be extinguished or at least reduced in intensity while making an emergency landing. It is apparent that an impasse has been reached on this issue. As the Safety Board has no additional information to offer in support of our position, Safety Recommendations A-84-77 and A-84-78 have been classified as "Closed--Unacceptable Action." However, the Safety Board will continue to stress these safety issues in future pertinent accident investigations and other studies.