

NTSB Recommendation A-83-076

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Rec #: A-83-076
NTSB Status: Closed - Acceptable Action
Issue date: 10/31/1983
Accident Date: 6/2/1983
Source Event: ACCIDENT
Location: CINCINNATI Ohio

Mode: AVIATION
Most Wanted List: No
Closed date: 3/6/1995
Report Number: AAR-84-09
Accident ID: DCA83AA028

Background Synopsis:

THE NATIONAL TRANSPORTATION SAFETY BOARD IS CONTINUING ITS INVESTIGATION OF THE ACCIDENT INVOLVING AIR CANADA FLIGHT 797 WHICH OCCURRED ON JUNE 2, 1983, WHEN THE FLIGHTCREW OF THE MCDONNELL DOUGLAS DC-9 AIRPLANE WAS FORCED TO MAKE AN EMERGENCY LANDING AT THE GREATER CINCINNATI AIRPORT BECAUSE OF AN IN-FLIGHT FIRE. THE INTERIOR MATERIALS OF THE AIRPLANE'S CABIN CONTINUED TO BURN AFTER THE LANDING. 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 BEGAN IN THE AIRPLANE'S LEFT REAR LAVATORY, BUT THE SOURCE OF IGNITION HAS NOT YET BEEN IDENTIFIED. TO PROMOTE A COMPREHENSIVE PROGRAM TO ADDRESS THE POTENTIALLY HAZARDOUS SITUATION POSED BY IN-FLIGHT FIRES, THE SAFETY BOARD IS ISSUING NEW SAFETY RECOMMENDATIONS RATHER THAN REITERATING RELEVANT SAFETY RECOMMENDATIONS PREVIOUSLY ISSUED TO THE FAA.

Recommendation:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: EXPEDITE THE RESEARCH AT THE CIVIL AERO MEDICAL INSTITUTE NECESSARY TO DEVELOP THE TECHNOLOGY, EQUIPMENT STANDARDS, AND PROCEDURES TO PROVIDE PASSENGERS WITH RESPIRATORY PROTECTION FROM TOXIC ATMOSPHERES DURING IN-FLIGHT EMERGENCIES ABOARD TRANSPORT CATEGORY AIRPLANES.

Correspondence:

Response Date: 1/27/1984 From: Addressee

Response:

FAA COMMENT: RECENTLY THE FAA INITIATED A COMPREHENSIVE SPECIAL INVESTIGATION WHICH IS PERTINENT SPECIFICALLY TO WHAT THE BOARD HAS RECOMMENDED. THIS INVESTIGATION IS TO INCLUDE A THOROUGH ASSESSMENT OF VARIOUS TYPES OF PROTECTIVE BREATHING EQUIPMENT TO DETERMINE WHETHER OR NOT SUCH EQUIPMENT SHOULD BE CONSIDERED AS A REQUIREMENT FOR PASSENGER CABINS. WE EXPECT TO COMPLETE THIS INVESTIGATION WITHIN APPROXIMATELY 3 MONTHS. WE WILL NOTIFY THE BOARD OF OUR FINDINGS AT THAT TIME.

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Response Date: 7/9/1984 From: NTSB

Response:

The FAA's investigation to determine whether protective breathing equipment should be required for passenger cabins is pertinent, but does not totally satisfy this Safety Recommendation. The Safety Board believes that a more appropriate determination is what types of protective breathing equipment should be required for passenger cabins; accident experience has established its need. The Safety Board notes that the FAA originally planned to complete this investigation by February 1984. In view of the need for passenger respiratory protection, the Safety Board believes the FAA should expedite its investigation. This recommendation will be classified as "Open--Acceptable Action" pending review of the FAA's investigation. Further evaluation will be made when the investigation is complete so that the Safety Board will be able to observe what final positive action has been taken.

Response Date: 1/22/1985 From: Addressee

Response:

FAA LTR: WE HAVE COMPLETED OUR INVESTIGATION AND SUMMARIZED OUR FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS IN THE ENCLOSED STAFF STUDY REPORT, "PROTECTIVE BREATHING DEVICE FOR EMERGENCY USE BY AIRCRAFT PASSENGERS," DATED SEPTEMBER 1984. OUR INVESTIGATION INDICATES THAT, AT THE PRESENT TIME, THERE IS NO PRACTICAL DEVICE SUITABLE FOR USE IN COMMERCIAL AIRLINE CABINS TO PROTECT PASSENGERS FROM BOTH SMOKE AND TOXIC FUMES AND DECOMPRESSION. IN OUR CONTINUING EFFORTS TO IDENTIFY SPECIFIC CABIN SAFETY IMPROVEMENTS, WE ARE DEVELOPING AND HAVE ALREADY PROPOSED RULES WHICH, WHEN ENACTED AND EFFECTIVE, WILL SIGNIFICANTLY INCREASE CABIN FIRE SAFETY AND THUS SUBSTANTIALLY REDUCE THE NEED TO FURTHER DEVELOP PROTECTIVE BREATHING EQUIPMENT FOR PASSENGERS. ...THE AGENCY WILL CONTINUE TO EVALUATE THE NEED FOR PROTECTIVE BREATHING DEVICES AND PARTICIPATE IN RELEVANT INDUSTRY-GOVERNMENT MEETINGS WHICH ARE CONCERNED WITH THIS ISSUE. IF SUITABLE DEVICES ARE DEVELOPED BY INDUSTRY THAT ARE SHOWN TO HAVE PROMISE, THE FAA WILL EVALUATE THEM AND DEVELOP CRITERIA FOR THEIR APPROVAL.

Response Date: 5/10/1985 From: NTSB

Response:

The Safety Board notes the FAA's investigation of protective breathing devices. While the FAA's investigation led to the conclusion that given funding and time considerations, there are other positive actions to prevent or substantially minimize the occurrence of a cabin fire which require a higher priority consideration, the Safety Board believes that the FAA should be the catalyst in the development of protective breathing devices and that the development of such an important safety device should be pursued by both government and industry. The Safety Board agrees that until such a device is developed

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all methods of evacuating smoke and toxic gases from an aircraft should be evaluated, and it encourages the FAA to expedite its efforts in this area. The Safety Board continues to believe, however, that the need for protective breathing equipment has been established. Based on the work already completed and pending the development of respiratory protection system standards or of an effective smoke/toxic gas removal system, Safety Recommendation A-83-76 has been classified as "Open--Acceptable Action."

Response Date: 4/7/1987 From: Addressee

Response:

IN ORDER TO COMPLETELY EXAMINE THIS IMPORTANT ISSUE, THE FAA IS CURRENTLY PARTICIPATING IN AN INTERNATIONAL STUDY CONCERNING THE FEASIBILITY OF UTILIZING SMOKE HOODS OR PASSENGER PROTECTIVE BREATHING DEVICES IN TRANSPORT AIRPLANES. THE GROUP CONSISTS OF REPRESENTATIVES FROM THE FAA AND THE AIRWORTHINESS AUTHORITIES OF CANADA, FRANCE, AND THE UNITED KINGDOM. THE GROUP WILL DEVELOP A CONSOLIDATED, COOPERATIVE PLAN TO CONDUCT THE NECESSARY RESEARCH AND DEVELOPMENT TO REINVESTIGATE THE TECHNICAL SAFETY MERITS OF PASSENGER PROTECTIVE BREATHING DEVICES.

Response Date: 5/15/1987 From: NTSB

Response:

The Safety Board has reviewed the material which accompanied your letter and finds that these actions should improve cabin fire safety. The Board is pleased to learn that the FAA is participating in an international study concerning the feasibility of utilizing "smoke hoods" or other passenger protective breathing devices in transport airplanes. However, the Board is concerned about the amount of time that has passed without definitive action to provide passengers with respiratory protection being taken. The Safety Board requests that the FAA complete its work on this issue as soon as possible. Pending further correspondence, Safety Recommendation A-83-76 has been classified as "Open--Acceptable Action."

Response Date: 8/25/1987 From: Addressee

Response:

THE FAA IS CONTINUING ITS PARTICIPATION IN AN INTERNATIONAL STUDY WITH THE AIRWORTHINESS AUTHORITIES OF CANADA, FRANCE, AND THE UNITED KINGDOM CONCERNING THE FEASIBILITY AND DESIRABILITY OF PROVIDING PASSENGERS WITH INDIVIDUAL PROTECTIVE BREATHING DEVICES. TO DATE, THERE HAS BEEN NO CLEAR INDICATION THAT INDIVIDUAL PROTECTIVE BREATHING DEVICES WOULD PROVIDE ADEQUATE PROTECTION IN ALL POSSIBLE CONDITIONS. IT IS ANTICIPATED THAT THE GROUP WILL ISSUE A POSITION PAPER IN THE NEAR FUTURE. I WILL PROVIDE THE BOARD WITH A COPY OF THE POSITION PAPER AS SOON AS IT IS ISSUED.

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Response Date: 10/13/1987 From: NTSB

Response:

The Board is pleased that the FAA is continuing its participation in an international study concerning the feasibility of utilizing "smoke hoods" or other passenger protective breathing devices in transport airplanes. However, the Board remains concerned about the amount of time that has passed without definitive action taken to provide passengers with respiratory protection. The Safety Board requests that the FAA complete its work on this issue as soon as possible. Pending further correspondence, Safety Recommendation A-83-76 has been classified as "Open-- Acceptable Action."

Response Date: 2/2/1989 From: NTSB

Response:

The National Transportation Safety Board is reviewing its safety recommendation files in an effort to identify those recommendations on which there has been no correspondence, either by the Safety Board or the FAA, for an extended time. The Safety Board has not received any correspondence on Safety Recommendation A-83-76 since August 25, 1987, when the FAA stated that it was continuing its participation in an international study concerning the feasibility of providing passengers with individual protective breathing devices in transport airplanes. The Board replied by expressing concern about the amount of time that had passed without definitive action to provided passengers with respiratory protection. The Safety Board further requested that the FAA complete work on this issue as soon as possible. While the Safety Board is aware of many of the activities which have occurred in this area, we would appreciate an update on specific actions taken to implement this safety recommendation. Pending further response, Safety Recommendation A-83-76 will be maintained as "Open--Acceptable Action."

Response Date: 5/3/1989 From: Addressee

Response:

...AT THE PRESENT TIME THERE ARE NO PASSENGER PROTECTIVE BREATHING EQUIPMENT (PPBE) DEVICES THAT CAN PERFORM ADEQUATELY IN EVERY SITUATION. THE FOUR NATIONS (CANADA, FRANCE, THE UNITED KINGDOM, AND THE UNITED STATES) REMAIN COMMITTED TO DEVELOP AN ACCEPTABLE PERFORMANCE STANDARD THAT WOULD PROVIDE A NET SAFETY BENEFIT WITHOUT INTRODUCING UNREASONABLE HAZARDS. THE SOCIETY OF AUTOMOTIVE ENGINEERS HAS DEVELOPED A DRAFT AEROSPACE STANDARD (AS) 8048 FOR PPBE. THE FAA WILL USE THIS DRAFT AS THE BASIS FOR DEVELOPING A TECHNICAL STANDARD ORDER...

Response Date: 6/7/1989 From: NTSB

Response:

Thank you for your May 3, 1989, response to the National Transportation Safety Board's Recommendation A-83-76. This recommendation stemmed from the Safety Board's investigation of an in-flight fire on June 2, 1983, which occurred onboard Air Canada flight 797. We recommended that the FAA expedite the research at the Civil Aeromedical Institute necessary to develop the technology, equipment standards, and procedures to

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provide passengers with respiratory protection from toxic atmospheres during in-flight emergencies aboard transport category airplanes. The Board agrees with the FAA that before any passenger protective breathing equipment (PPBE) is allowed on board air carrier aircraft, analyses and/or tests must demonstrate that its use will not introduce additional safety hazards. We firmly believe that a Technical Standard Order (TSO) must, at a minimum, include stringent tests and performance criteria that demonstrate that the PPBE can be donned and doffed in a reasonable time by naive subjects; that there is minimal restriction of vision, hearing, and verbal communication; and, that it protects the wearer from smoke and toxic fumes. Pending issuance of the TSO, this recommendation is classified as "Open--Acceptable Action."

Response Date: 12/11/1989 From: Addressee

Response:

The Society of Automotive Engineers is continuing its efforts to develop an Aerospace Standard (AS) for passenger protective breathing equipment. The FAA has provided the Safety Board's concerns expressed in its letter dated June 16, 1989, to the Society of Automotive Engineers for consideration in the development of the draft AS. The FAA intends to use the AS as the basis for developing a technical standard order as soon as it is issued. I will keep the Board apprised of the FAA's progress on this safety recommendation.

Response Date: 1/16/1990 From: NTSB

Response:

Thank you for the FAA response of December 11, 1989, to the National Transportation Safety Board's Safety Recommendation A-83-76, concerning research into respiratory protection for passengers from toxic atmospheres during in-flight emergencies aboard transport category airplanes. The Safety Board notes from the FAA response that the Society of Automotive Engineers is developing an Aerospace Standard for passenger protective breathing equipment. The Safety Board is also aware that a number of protective devices have been developed and tested since this safety recommendation was issued 6 years ago, that further lives have been lost in aircraft fires (most recently in the August 31, 1988, accident involving Delta Airlines flight 1141), and that the FAA, not the Society of Automotive Engineers, is responsible for safety standards of aeronautical equipment and operations. We believe the FAA should increase its efforts to resolve this safety problem. Pending further information, Safety Recommendation A-83-76 remains classified as "Open--Acceptable Action."

Response Date: 12/23/1994 From: Addressee

Response:

A JOINT INTERNATIONAL STANDARD FOR PASSENGER PROTECTION BREATHING EQUIPMENT HAS BEEN DEVELOPED. THE STANDARD WHICH WAS APPROVED BY THE EUROPEAN ORGANIZATION FOR CIVIL AVIATION EQUIPMENT (EUROCAE) & ENDORSED BY THE SOCIETY OF AUTOMOTIVE ENGINEERS IS A "MINIMUM OPERATIONAL PERFORMANCE SPECIFICATION FOR PASSENGER PROTECTIVE BREATHING EQUIPMENT (PPBE), ED-65."

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SHOULD AN APPLICANT WISH TO PURSUE PPBE APPROVAL IN THE FUTURE, THE FAA WOULD USE THE INTERNATIONAL STANDARD EUROCAE ED-65 FOR DEMONSTRATING COMPLIANCE OF THE EQUIPMENT.

Response Date: 3/6/1995 From: NTSB

Response:

THE BOARD NOTES THAT AN INTERNATIONAL STANDARD ENTITLED "MINIMUM OPERATIONAL PERFORMANCE SPECIFICATION FOR PASSENGER PROTECTIVE BREATHING EQUIPMENT (PPBE), ED-65" HAS APPROVED BY THE EUROPEAN ORGANIZATION FOR CIVIL AVIATION EQUIPMENT (EUROCAE) & ENDORSED BY THE SOCIETY OF AUTOMOTIVE ENGINEERS. THE FAA NOTES THA IT WILL USE THIS INTERNATIONAL STANDARD AS THE BASIS FOR AN APPLICANT TO DEMONSTRATE COMPLIANCE OF A PPBE FOR WHICH FAA APPROVAL IS SOUGHT. BECAUSE THE FAA HAS MET THE INTENT OF A-83-76, THE BOARD CLASSIFIES IT "