



# National Transportation Safety Board

Washington, D.C. 20594  
Safety Recommendation

*Log# 2538A*

**Date:** September 9, 1996

**In reply refer to:** A-96-78 through -89

Honorable David R. Hinson  
Administrator  
Federal Aviation Administration  
Washington, D C. 20591

On June 8, 1995, a Douglas DC-9-32, N908VJ, was being operated by ValuJet Airlines as a scheduled, domestic passenger flight under the provisions of Title 14 Code of Federal Regulations (CFR) Part 121. Flight 597, destined for Miami, Florida, departed gate C25 at the William B Hartsfield Atlanta International Airport, Atlanta, Georgia, at 1855, and was cleared for takeoff on runway 27R at 1908. Five crewmembers and 57 passengers were on board.

As flight 597 began its takeoff roll, a "loud bang" was heard by the airplane occupants and air traffic control personnel. The right engine fire warning light illuminated, the flightcrew of a following airplane reported to the ValuJet crew that the right engine was on fire, and the takeoff was rejected. Shrapnel from the right engine penetrated the fuselage and the right engine main fuel line, and a cabin fire erupted. The airplane was stopped on the runway, and the captain ordered the evacuation of the airplane.

The flight attendant seated in the aft flight attendant jumpseat received serious puncture wounds from shrapnel and thermal injuries. Another flight attendant and five passengers received minor injuries. The pilots, the third flight attendant, and 52 passengers were not injured. The airplane's fuselage was destroyed.

The National Transportation Safety Board determined that the probable cause of this accident was the failure of maintenance and inspection personnel from Turk Hava Yollari (THY), a repair station owned and operated by Turkish Airlines in Turkey, to perform a proper inspection of a Pratt & Whitney (P&W) JT8D 7<sup>th</sup> stage high compressor disk. This allowed a detectable crack to grow to a length at which the disk ruptured, under normal operating conditions, propelling engine fragments into the fuselage. The fragments severed the right engine main fuel line, which resulted in a fire that rapidly engulfed the cabin area. The lack of an adequate recordkeeping system and the failure to use "process sheets" to document the step-by-step overhaul/inspection procedures contributed to the failure to detect the crack and, thus, to the accident.

The safety issues addressed in the Board's report of this accident investigation include the clarity of operations specifications for repair stations, recordkeeping requirements for foreign repair stations, regulatory guidance concerning maintenance documentation, intent of "serviceable tags," independently powered public address systems on all transport-category airplanes, flight attendant training programs and manuals, enforcement of occupant restraint requirements, notification of flightcrew of cabin fire, cabin material/fire safety standards, flight attendant attire, and quality of cockpit voice recordings.<sup>1</sup>

### **THY's Authority to Overhaul JT8D Engines**

During its investigation, the Safety Board received conflicting interpretations of THY's authority to overhaul JT8D engines. In a memorandum dated November 16, 1995, responding to a Safety Board inquiry, the Director of the Federal Aviation Administration's (FAA) Flight Standards Service (AFS-1) stated that THY did not have JT8D engine overhaul authority from 1986-1994, the time during which the accident engine was overhauled. However, THY maintains that its Air Agency Certificates and associated Repair Station Operations Specifications authorized THY to overhaul JT8D and other engines during those years.

The operations specifications in question were issued on November 21, 1986, and listed "Limited Ratings"<sup>2</sup> for Airframe to include: Airbus Industries A300 and A310 series, Boeing B707/720, and B727 series, Fokker F28 series, McDonnell Douglas DC-9 and DC-10 series, and other airplanes; and for Powerplant to include: General Electric CF6 series, P&W JT3D, JT8D, JT9D, and PT6A series, and various Rolls Royce engines. A note under the powerplant limited ratings stated the following:

LINE MAINTENANCE FOR OTHER ENGINES IN THE CLASS 3 CATEGORY. AUTHORIZATION IS LIMITED TO MINOR INSPECTIONS, REMOVAL/INSTALLATION OF ACCESSORIES AND COMPONENTS, ADJUSTMENTS, MINOR REPAIRS, MINOR ALTERATIONS ONLY. WORK TO BE ACCOMPLISHED IN ACCORDANCE WITH THE MANUFACTURER'S TECHNICAL DATA OR OTHER PROCEDURES ACCEPTABLE TO THE [FAA] ADMINISTRATOR.

In the Safety Board's view, the FAA 1986 Repair Station Operations Specifications can reasonably be read to indicate that THY's Limited Class 3 powerplant rating (authorizing all levels of maintenance, including overhaul) permitted overhaul of

<sup>1</sup> For more detailed information, read Aircraft Accident Report—"Uncontained Engine Failure/Fire ValuJet Airlines Flight 597, Douglas DC-9-32, N908VI, Atlanta, Georgia, June 8, 1995" (NTSB/AAR-96/03)

<sup>2</sup> Limited ratings are ratings issued to repair stations for the performance of maintenance on particular makes and models of airframes, powerplants, propellers, radios, instruments, accessories, and/or parts. (8300.10 (Chapter 161, Section 1, paragraph (8) FAR 145.33.)

certain engines, including the JT8D, and that only line maintenance was authorized for Class 3 engines that were not listed on the operations specifications

Because of the Safety Board's difficulty in understanding the FAA's contrary interpretation of this authorization, the Safety Board requested, in a letter to the FAA dated May 23, 1996, a clarification of the FAA's position on this issue. In a meeting with Safety Board staff on July 10, 1996, the FAA reiterated its position that THY did not have authority to overhaul JT8D engines for U.S.-certificated operations from 1986-1994. The FAA cited a phone call from THY in 1994 that requested expansion of the operations specifications to include engine overhauls. The Board remains convinced that the language of THY's operations specifications does not readily comport with the FAA's position, and the Safety Board is concerned that confusion about the extent of the authority of other repair stations may exist. Thus, the Safety Board believes that the FAA should review the Air Agency Certificates and Repair Station Operations Specifications of all repair stations and ensure that language in the operations specifications clearly indicates the extent of the repair stations' authority

### **Adequacy of FAA Recordkeeping Requirements**

As part of its investigation, the Safety Board reviewed applicable regulations addressing the type and detail of records required to be retained by all repair stations. This review indicated that FAA guidance in this area is insufficient and vague. Regulations governing maintenance practices in general (FAR 43.3) require that maintenance record entries contain only "a description (or reference to data acceptable to the [FAA] Administrator) of work performed." Regulations governing repair stations (FAR 145.61) require that repair stations keep "adequate records of all work [that they do]" but do not define what constitutes "adequate records." Regulations governing air carrier maintenance programs (FAR 121.380) require carriers to keep certain "records" (including records of the last complete overhaul of each airframe, engine, propeller, rotor, and appliance until the work is superseded by work of equivalent scope and detail) but do not define what sort of information, and what degree of detail, those "records" should contain. FAA Order 8130.2C, paragraph 220, indicates that "necessary maintenance documentation" must accompany an imported product before it can be returned to service, but there is no definition or clarification in paragraph 220 of what is considered "necessary maintenance documentation." Although it is possible that this is intended to refer to the maintenance records required to be kept by an owner or operator, as specified in FAR 91.417,<sup>3</sup> paragraph 219, "Identification and Marking," no such intention is explicitly stated

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<sup>3</sup> FAR 91.417 requires each owner or operator to keep certain records, including records of maintenance, alteration, and inspections (including a description of the work performed, the date of completion, and the signature and certificate number of the person approving the aircraft for return to service); total time in service of airframes, engines, propellers, and rotors; records showing current status of life-limited parts; time since last overhaul of items required to be overhauled on a specified time basis; inspection status of the aircraft; status of airworthiness directives, including method of compliance; and copies of forms required for major alterations.

in paragraph 220. In any event, because the records specified in FAR 91 417 are general maintenance records containing only very basic information, they are an insufficient basis on which to conclude that an item is airworthy, even assuming that is what is meant by "necessary maintenance documentation "

In 1991, THY was alerted by P&W that the lack of "process sheets" (detailed documentation) in the Turkish language represented a deficiency in its operation. However, it was not until June 1995 that such documentation was used by the repair station. Further, although the documentation that the THY repair station began to use in June 1995 represents a significant improvement, those forms do not contain the level of detail contained in similar documentation used by some U S repair facilities. For example, the new THY "traveler forms" are generic to any disk and are not specific to any engine; that is, there is no form specific to the 7<sup>th</sup> stage HPC disk of a JT8D engine. Further, there is no reference on the form to specific sections of the engine maintenance manuals (or more detailed job instruction cards) that describe detailed instructions or references needed to complete the task. This type of information would not only help to ensure a proper overhaul or prevent a missed inspection, but would also help to assure the proper application of the overhaul and inspection procedures.

Another advantage to detailed documentation is that, if retained, it provides a much better basis for verifying the serviceability (or airworthiness) of engines/components being returned to service. Therefore, the Safety Board believes that the FAA should revise the applicable regulations and provide specific guidance on the documentation to be used and kept during inspections and overhauls, including "process sheets" or similar detailed documentation for all certificated repair stations.

Although foreign repair stations are not subject to the same recordkeeping requirements as domestic repair stations, the Safety Board recognizes that most repair stations will voluntarily keep adequate records of work done and believes that the records available in this case met the minimum standards in existence at this time and were adequate for the consultant to conclude that the recordkeeping system was valid. Moreover, the Safety Board recognizes that even if THY had been subject to the same recordkeeping requirements as domestic repair stations, it still would not have been required to keep records of the 1991 disk overhauls because the engine was installed on a non-U.S. (Turkish) registered aircraft. Nonetheless, the Safety Board believes that the FAA should revise 14 CFR Part 145 to require Subpart C foreign repair stations to adhere to the same recordkeeping requirements of 14 CFR Part 145 61.

### **Maintenance Release and "Serviceable" Tags for Aircraft Components**

The tag on the engine that experienced the uncontained failure described only that the engine had been preserved for up to 90 days, and FAA regulations state that the signature on a maintenance record entry constitutes approval for return to service only for the work performed. However, the technical control director of THY's repair station engine shop indicated that THY intended that the tag act as a full statement of

serviceability and release for return to service based on a complete records review, rather than just the last maintenance action.

The Safety Board is aware that "serviceable" tags are routinely used by industry, vary considerably in format, and are sometimes relied upon as assurance of overall airworthiness. However, there appears to be no clear regulatory basis for such an assurance. Therefore, the Safety Board believes that the FAA should require that "serviceable tags" be used to return engines and other component parts to service, that they be in a prescribed format (perhaps in the format of FAA Form 8130-3) and that when there is a change of ownership, and certainly upon importation, the approval for return to service attest to the overall airworthiness of the part. The tag should reflect that a complete and thorough review of records, including "process sheets" of the last overhaul, has taken place. In the absence of such records, an overhaul of the part should be required when there is a change in ownership.

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### **Emergency Lighting and Public Address System**

Because the airplane quickly filled with smoke after the engine failure, the pilots were able to complete only the first three items on the evacuation checklist before they exited the airplane. Further attempts by the pilots to complete the checklist could have exposed them to unnecessary risk. Because the fourth item on the checklist—moving the emergency light switch to the "ON" position—was not completed, emergency lights in the cabin were not illuminated during a portion of the evacuation. Fortunately, in this accident, the lack of emergency lights in the cabin did not preclude a successful evacuation.

The pilot's first attempt to order an evacuation was not successful because electrical power to the PA system was lost when the engines were shut down. After the captain selected emergency electrical power (which caused the emergency lights to turn off), power was restored to the PA system and the captain successfully communicated the evacuation order. Although the delay in communicating the evacuation order did not adversely affect the evacuation, this accident again highlights the need for an independent power source for PA systems in transport-category airplanes. Further, had the PA system had its own independent source of power, the pilots would not have had to select emergency power, and the emergency lights would have remained lighted during the evacuation of the airplane.

The Safety Board has issued three safety recommendations over the years (in 1974, 1979, and 1981, respectively) advocating an independent power source for PA systems. Finally, in May 1986, the FAA published a notice of proposed rulemaking that would require an independent power source for PA systems in newly manufactured transport-category airplanes. In its comments on that rulemaking activity, the Safety Board supported the intent of the proposed rule but noted that the rule should also provide for the retrofit of all airplanes currently in service. On October 27, 1989, the FAA amended 14 CFR Part 121.318(g) to require that transport-category airplanes

manufactured on or after November 27, 1990, be equipped with an independent power source for the PA system. The FAA did not include a provision for the retrofit of airplanes currently in service, as requested by the Safety Board.

Communication is vital to a successful evacuation of any transport-category airplane, regardless of the date of manufacture. This accident again highlights the need for pilots to be able to communicate with passengers via the PA system without first turning off power to emergency lights. The Safety Board therefore believes that the FAA should require that all transport-category aircraft manufactured before November 27, 1990, be retrofitted with a PA system capable of operating on an independent power source.

### **ValuJet's Flight Attendant Training Program**

The investigation of this accident disclosed deficiencies in ValuJet's flight attendant training program, including emergency drills training, and the FAA's inadequate oversight of this program. Although these deficiencies did not affect occupant survivability in this accident, they could adversely affect the outcome of future emergency situations.

ValuJet's flight attendant training program had been approved and the flight attendant manual had been accepted by the FAA principal operations inspector (POI) for ValuJet in September 1993. However, contrary to the requirements of 14 CFR Part 121, which require, in part, that crewmembers operate each type of emergency exit in its normal and emergency modes, ValuJet's flight attendant training syllabus did not include hands-on operation of a tailcone release handle.

The deficiencies noted in this accident were subsequently addressed by the air carrier; however, the Safety Board is concerned that these deficiencies raise serious questions about the adequacy of the FAA's review of the program and the manual before approval and acceptance by the FAA in September 1993. Therefore, the Safety Board believes that the FAA should emphasize to its POIs the importance of thoroughly reviewing flight attendant training programs before approving them and manuals before accepting them.

### **In-Lap Children over 2 Years Old**

The investigation determined that one child more than 24 months old was listed as a lap child, despite Federal regulations that require all passengers more than 24 months old to be restrained during takeoffs and landings. The Safety Board has long been concerned about the inadequacy and enforcement of this regulation and, in the last several years, has identified at least six accidents and one enforcement action in which children more than 2 years old were unrestrained because they were held in someone's lap. The ages of these children ranged from 26 months to 5 years old.

During the Safety Board's public hearing following a 1989 air carrier accident, the Safety Board questioned the Air Transport Association (ATA) about the methods used by air carriers to ensure that all occupants are properly restrained. The ATA representative stated that it was "an uncertain art" and that because airlines were a "service industry," airline representatives would only question a passenger "if they felt that the casual observer could determine that the child was much larger and probably over two." According to FAA testimony at that public hearing, enforcement of this regulation depends on an FAA inspector observing that the child is more than 2 years old. One inspector discovered a child who was 5 years old being held on a lap; the inspector initiated enforcement actions.<sup>4</sup> The available evidence suggests that the FAA may only be enforcing this regulation when an egregious violation occurs.

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~~The Safety Board continues to strongly believe that restraints should be available for all occupants, regardless of age. However, although the Safety Board does not agree with the existing regulation, until such time as restraints are required for all occupants, the Safety Board believes that the FAA needs to provide guidance on how to implement its requirement that occupants who are older than 2 years of age be restrained during takeoffs and landings.~~

#### **Notification of Flightcrew of Cabin Fire**

The pilots received information that they had an engine fire when the right engine fire warning light illuminated, other pilots contacted them, and air traffic control personnel asked if emergency equipment was needed. However, the most timely and unambiguous information that there was a fire inside the airplane was provided by the flight attendants, although the flight attendants did not follow ValuJet's procedure that required the use of the interphone six-chime emergency signal to inform the cockpit of the fire. One of the flight attendants in the forward section of the cabin saw flames around the flight attendant in the aft jumpseat and tried to notify the flightcrew of the fire by opening the cockpit door. As required by FAA regulations, the cockpit door was locked. While one of the forward flight attendants reached for the cockpit door key, which had been stored in the galley per ValuJet procedures, the other flight attendant successfully opened the cockpit door with her own key and informed the flightcrew of the fire.

Because of the need for a flight attendant to retrieve a cockpit key from its storage area in the galley before being able to unlock the cockpit door, use of the six-chime signal would probably have been the faster way to notify the cockpit about the fire. However, the Safety Board has some concerns regarding the use of the interphone as the sole means of notifying the cockpit of an onboard fire. In an emergency situation, the cockpit crew may be too busy with other emergency tasks to immediately answer the interphone. In fact, the Safety Board has investigated accidents in which the flight attendant's interphone

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<sup>4</sup> The FAA has advised the Safety Board of only one enforcement action in response to the Safety Board's 5/29/96 request to the FAA to provide a list of all enforcement actions related to in-lap infants.

calls were not answered.<sup>5</sup> In this particular instance, however, it was fortunate that one of the flight attendants had her own cockpit key and thus was able to quickly notify the flightcrew about the fire

The Safety Board is concerned that having only one cockpit key available and stored in the galley may not allow a key to be readily accessible to all flight attendants in an emergency. Also, relying solely on the six-chime emergency signal to be answered by the flightcrew in the cockpit when they may be preoccupied with other emergency procedures and tasks could result in the flightcrew not becoming aware as soon as possible that a fire exists in the cabin. The Safety Board concludes that all flight attendants should be able to quickly access the cockpit when appropriate.<sup>6</sup> Therefore, the Safety Board believes that the FAA should require that each flight attendant have a cockpit key in his/her possession at all times while on duty.

### **Fire Retardant Cabin Furnishings**

The aircraft involved in this accident did not meet current regulations regarding flammability standards for materials used in the interiors of transport-category airplane cabins nor was it required to do so

The Safety Board has long been concerned with the FAA's interpretation that new standard fire retardant cabin furnishing materials should be only required in the case of a "general retrofit." Airplane owners and operators are allowed to continue to perform piece-meal replacement of cabin furnishings using existing stocks of fire retardant parts that do not meet the 1985 standards. As the regulation is currently worded, an airplane in service for 20 or more years might never be subject to a "general retrofit."

On January 6, 1993, the Government Accounting Office (GAO) submitted to the Congress a report on the status of how the airlines were progressing with installing more fire-resistant cabin materials in in-service airplanes.<sup>7</sup> As a result of its report, the GAO recommended that the Secretary of Transportation direct the FAA Administrator to reassess whether to issue a regulatory requirement mandating a specific date for all aircraft in the fleet to comply with the latest flammability standards for cabin interiors. Such a reassessment should compare the cost-effectiveness of retrofitting aircraft to meet the standards with other actions that could improve the overall safety of the U.S. aircraft fleet.

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<sup>5</sup> NYC-86-FA-076, L-1011, Jamaica, New York, 2/15/86; DCA-96-MA-029, B-747, Jamaica, New York, 12/20/95.

<sup>6</sup> Subsequent to this accident, ValuJet provided a cockpit key to all of its flight attendants

<sup>7</sup> "Slow Progress in Making Aircraft Cabin Interiors Fireproof" Report to Congressional Requesters. General Accounting Office, GAO/RCED-93-37, January 6, 1993.



In response to this recommendation, the FAA reassessed its earlier cost-benefit analysis and again concluded that mandatory retrofit of improved cabin materials would not be cost beneficial, and thus, mandatory retrofit was not warranted.

The Safety Board concludes that the ValuJet accident in Atlanta again illustrates the importance of the current standards and the need for existing aircraft to be brought up to these standards as quickly as possible. Consequently, the Safety Board believes that the FAA should prohibit the use during any type of replacement, after 1997, of cabin materials in all transport-category airplanes that do not comply with the current fire safety standards contained in 14 CFR 25.853. Furthermore, the FAA should amend 14 CFR Part 121 to prohibit, upon a transfer of the aircraft from one certificate holder to another, or by January 1, 2001, whichever occurs first, the operation of airplanes with cabin materials that do not meet the requirements of 14 CFR Part 25.853.

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### **ValuJet Flight Attendant Uniforms**

The FAA provides guidance to airline passengers in a brochure titled, "Fly Smart" (U S Department of Transportation, Federal Aviation Administration, ASP-200, 94/002). This brochure, among other things, addresses appropriate attire for passengers when flying. The brochure instructs travelers to wear "sensible" clothing, such as clothes made of natural fabrics, and recommends long sleeves and trousers that fully cover arms and legs.

The aft flight attendant who received the most serious injuries was wearing shorts and a short-sleeved shirt. Had she been wearing attire similar to that recommended in "Fly Smart," she may not have been burned. Therefore, the Safety Board believes that the FAA should issue an operations bulletin recommending that POIs advise their air carriers to disseminate FAA safety guidance on airline passenger attire to their flight attendants.

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### **Quality of CVR Recording**

The recording of the CVR installed on the accident airplane was considered to be a recording of only fair quality,<sup>8</sup> primarily because of the ambient noise in the cockpit. Although the quality of recording did not affect the determination of the causal factors in this accident, the Safety Board is concerned that the investigation of future accidents involving airplanes with similarly equipped CVRs could be impeded by unintelligible dialogue on the recording. The Safety Board has long been concerned about the quality of CVR recordings, as reflected in the following safety recommendation, which the Board issued to the FAA in June 1987:

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<sup>8</sup> The Safety Board generally uses the following criteria to assess the quality of a CVR recording: a "poor" recording is one in which a transcription is nearly impossible given that a large portion of the recording is unintelligible; a "fair" recording is one in which a transcription is possible, but the recording is difficult to understand; a "good" recording is one in which few words are unintelligible; and an "excellent" recording is very clear and easily transcribed.

Amend 14 CFR Parts 23 and 25 to require that all newly manufactured aircraft and new cockpit voice recorder installations be designed such that an uninterrupted recording from the boom or mask microphones and headphones for each flight crewmember's position and from an area microphone can be made on dedicated channels of the CVR. On those aircraft requiring only two flight crewmembers, the unused channel should record the passenger address audio signal when available. A sidetone shall be produced only when the transmitter or interphone is selected, and, in addition, all audio signals received by hand-held microphones shall be recorded on the respective crewmember's channel when keyed to the "ON" position (A-87-88)<sup>9</sup>

In support of that recommendation, the Safety Board noted in its letter to the FAA that the Board had found the performance of CVR installations in which the audio signal from the boom microphone of each flight crewmember is continuously recorded on a dedicated channel, often referred to as a "hot mic," to be far superior to the standard cockpit area microphone (CAM), which is typically mounted on the cockpit overhead panel and picks up ambient noise. A CAM was installed on the ValuJet accident airplane. The Safety Board reached that conclusion after the investigation of several accidents/incidents involving both U.S.-registered and foreign-registered airplanes equipped with CVR "hot mics."<sup>10</sup> The Safety Board stated in its letter to the FAA that, in fact, the "hot mic" has proven to be a most significant technological improvement in CVRs and that the level of improvement far surpasses any technological improvement that could be achieved by state-of-the-art recording or signal processing equipment.

In contrast, the Safety Board noted that the quality of the audio signal recorded by the standard CAM can generally be described as fair, which requires considerable time and effort to produce a transcript, and which frequently can result in unintelligible dialogue.

Recent Safety Board accident investigations have continued to highlight the improved quality in recordings from CVR "hot mics."<sup>11</sup> These improvements have long

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<sup>9</sup> Safety Recommendation A-87-88 was classified "Closed—Acceptable Action" on December 23, 1988, following rulemaking by the FAA

<sup>10</sup> DCA84IA029--June 23, 1984, Chicago O'Hare Airport; Tradewinds Airways Ltd., Flight 11, Boeing 707, G-SAIL; ANC85MA183--September 25, 1985, Dutch Harbor, Alaska, Mark Air B737, N674MA; DEN86FA080--February 20, 1986, Denver, Colorado, Continental Airlines, B737-300; DCA87IA015--December 18, 1986, Simmons Airlines, Flight 2860, ATR-42, N423MQ

<sup>11</sup> (1) National Transportation Safety Board. 1994. Stall and loss of control on final approach of Atlantic Coast Airlines, Inc., United Express Flight 6291, Jetstream 4101, N304UE, at Columbus, Ohio, on January 7, 1994. Aircraft Accident Report NTSB/AAR-94/07. Washington, D.C. (2) National Transportation Safety Board. 1995. Uncontrolled collision with terrain of Flagship Airlines Inc., doing

been recognized by other aviation authorities. The Civil Aviation Authority of the United Kingdom has required CVR "hot mics" since 1974 on all aircraft registered in the United Kingdom. The adoption of CVR "hot mic" standards (not requirements) by the ICAO and EUROCAE was prompted, in part, by the United Kingdom's many years of experience in analyzing CVR "hot mic" recordings.

The Board's investigation of the ValuJet accident in Atlanta again raises concerns about the adequacy of CVRs equipped with the standard CAM. Given the numerous benefits of CVR "hot mics" and the slight cost of these installations, the Safety Board believes that the FAA should require all airplanes currently required to be installed with a CVR to be retrofitted within 2 years with a CVR "hot mic."

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

Review the Air Agency Certificates and Repair Station Operations Specifications of all repair stations and ensure that the language used in the operations specifications clearly indicates the extent of the repair stations' authority. (Class II, Priority Action)(A-96-78)

Revise 14 CFR Part 145 to require Subpart C foreign repair stations to adhere to the same recordkeeping requirements as domestic repair stations. (Class II, Priority Action)(A-96-79)

Revise the applicable regulations and provide specific guidance on the documentation to be used and kept during inspections and overhauls, including "process sheets" or similar detailed documentation for all certificated repair stations. (Class II, Priority Action)(A-96-80)

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Require that "serviceable tags" be used to return engines and other components to service, that they be in a prescribed format (perhaps in the format of FAA Form 8130-3), and that when there is a change of ownership, and certainly upon importation, the approval for return to service attest to the overall airworthiness of the part and the tag reflect that a complete and thorough review of records, including "process sheets" of the last overhaul, has taken place. In the absence of such records, require an overhaul of the part when there is a change in ownership. (Class II, Priority Action)(A-96-81)

Require that all transport-category aircraft manufactured before November 27, 1990, be retrofitted with a public address system capable of operating on an independent power source. (Class II, Priority Action)(A-96-82)

Emphasize to principal operations inspectors the importance of thoroughly reviewing flight attendant training programs before approving them and flight attendant manuals before accepting them. (Class II, Priority Action) (A-96-83)

Provide guidance on how to implement the requirement that occupants who are more than 24 months old are restrained during takeoffs, landings, and during turbulence. (Class II, Priority Action)(A-96-84)

Require that each flight attendant have a cockpit key in his/her possession at all times while on duty (Class II, Priority Action)(A-96-85)

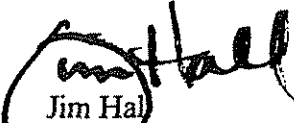
Prohibit the use during any type of replacement, after 1997, of cabin materials in all transport-category airplanes that do not comply with the current fire safety standards contained in 14 CFR 25.853. (Class II, Priority Action)(A-96-86)

Amend 14 CFR Part 121 to prohibit, upon a transfer of the aircraft from one certificate holder to another, or by January 1, 2001, whichever occurs first, the operation of airplanes with cabin materials that do not meet the requirements of 14 CFR Part 25 853. (Class II, Priority Action) (A-96-87)

Issue an operations bulletin recommending that principal operations inspectors advise their air carriers to disseminate Federal Aviation Administration safety guidance on airline passenger attire to their flight attendants. (Class II, Priority Action) (A-96-88)

Require all aircraft currently required to be installed with a cockpit voice recorder (CVR) to be retrofitted within 2 years with a CVR installation designed such that an uninterrupted recording from the boom or mask microphones and headphones for each flight crewmember's position and from an area microphone can be made on dedicated channels of the CVR. A sidetone shall be produced only when the transmitter or interphone is selected, and, in addition, all audio signals received by hand-held microphones shall be recorded on the respective crewmember's channel when keyed to the "ON" position. (Class II, Priority Action) (A-96-89)

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

By:   
Jim Hall  
Chairman