

**VOLUME 3 GENERAL TECHNICAL ADMINISTRATION****CHAPTER 33 CABIN SAFETY AND FLIGHT ATTENDANT MANAGEMENT****Section 3 Safety Assurance System: Instrument and Equipment Requirements**

**3-3481 REPORTING SYSTEM.** This section is applicable to Safety Assurance System (SAS) Elements 5.1.1 (OP) Training of Flight Attendants and 5.2.1 (OP) Crewmember Duties/Cabin Procedures.

**3-3482 ROUTINE OPENING/CLOSING OF DOORS ON WIDE-BODIED JETS.**  
A routine investigation of a passenger complaint revealed that a person seated next to door/exit 2L, which is used as a boarding entrance on certain McDonnell Douglas DC-10 aircraft, could receive possible injury during the closing of the door. Air carriers should establish procedures providing adequate protection against possible injury from these seating arrangements.

**A. One Possible Problem and Solution.** One DC-10 operator who uses door/exit 2L for routine boarding has a seating arrangement that leaves the seat adjacent to the door unprotected. The air carrier instituted a policy whereby the passenger is asked to stand during the opening/closing of the door.

**B. Problems and Hazards.** A possible safety hazard may also exist at doors/exits 2L and 2R with respect to the protrusions presented by the manual lift bar and evacuation slide container. This presents a possible problem if the occupant experiences excessive forward force and makes contact with the slide container. Due to the limited space, passengers occupying these seats could experience a definite hazard while attempting to assume a brace position under emergency conditions.

**3-3483 UPRIGHT POSITION OF SEATBACKS FOR TAKEOFF AND LANDING.**  
Flight attendants (F/A) must be trained that it is necessary to place the seatbacks in the fully upright position for takeoff and landing.

**A. Requirements.** Title 14 of the Code of Federal Regulations (14 CFR) part 121, § 121.311 requires:

- 1) The seatback to be in the upright position for takeoff and landing, and
- 2) Each passenger to comply with instructions given by a crewmember to put their seats in a fully upright position for takeoff and landing.

**B. Seat Position.** Transport category airplanes are customarily provided with seats that are part of an approved interior of the particular type design and comply with 14 CFR part 25. This includes many emergency evacuation considerations, such as the seat designs, their pitch, location, and unit approval. When reclined to any degree, the seats are not in the upright position for emergency evacuation, which must be demonstrated during aircraft certification. Part 121 requires that the seatback must be in this fully upright position (not in any other position) for takeoff and landing, to assure the degree of safety intended for emergency evacuation.

NOTE: Section 121.311 does allow air carriers to develop procedures to accommodate persons who are unable to sit upright for medical reasons, if the seatback does not obstruct any passenger's access to the aisle or to any emergency exit.

**3-3484 PROTRUDING PASSENGER SEAT ARMRESTS.** Inspection of the Hardman Model 9500 and other passenger seats installed on several aircraft disclosed that the armrest in the upright or stowed position can protrude approximately 45 degrees aft the seatback. In the event of an emergency evacuation, protruding armrests could present an obstacle between seat passageways, obstructing emergency exit access. Air carriers should emphasize to F/As that prior to takeoff and landing they verify that the armrests are in the normal forward/down position in order to ensure that they do not obstruct the passageway between the row of seats leading from the aisle to the emergency exit.

**3-3485 EMERGENCY MEDICAL KITS (EMK).**

**A. Required Contents.** Part 121 appendix A, provides a list of the required contents of medical kits. Each air carrier is responsible for assuring that the approved medical kits meet the required specifications.

**B. Storage of EMKs.** Air carriers should be aware of the temperature range which may be established for some drugs contained in the medical kits. "Damaging temperatures" means temperature extremes which cause the EMK medications to lose their effectiveness. The U.S. Food and Drug Administration (FDA) requires that medications stored at controlled room temperature are stable within a temperature range of 59 to 86 degrees Fahrenheit. However, based on experience in emergency medical vehicles (such as ambulances and other areas), most current medications appear to be stable within a wider temperature range. In addition, the EMK and aircraft cabin provide some protection from potentially harmful external temperatures. At present, the aircraft cabin environment does not appear to affect the required medications negatively as long as they are replaced before their expiration date.

1) If an aircraft has been exposed to extreme hot or cold temperatures, medications in a liquid form (injectable) should be inspected before use. If they are yellow or cloudy, then they may have lost their effectiveness and should not be used. If an aircraft is parked or taken out of service (OTS) for an extended period of time in a location where it may be exposed to temperature extremes, then the EMK should be taken off the aircraft and protected.

2) Additional information regarding emergency medical equipment can be viewed at [https://www.faa.gov/about/initiatives/cabin\\_safety/](https://www.faa.gov/about/initiatives/cabin_safety/).

**3-3486 EMERGENCY EVACUATION ESCAPE ROUTES.** The location of the vortex generators on the wings of McDonnell Douglas DC-9-10 aircraft present a hazard to emergency evacuees seeking the most direct escape route from the overwing exits to the ground. There may be room for one person to go between the vortex generators and the fuselage, and room for approximately eight or ten abreast to go off the trailing edge of the wing outboard of the vortex generators. Since the leading edge of the wing is less than 6 feet from the ground, it also offers an acceptable escape route.

**A. Required Briefing Cards—Possible Escape Routes.** The passenger safety information briefing cards required by part 121 on DC-9-10 aircraft should indicate that the best escape route is over the trailing edge of the wing and flaps outboard of the vortex generators. However, leaving the wing over the leading edge is also acceptable.

**B. Required Briefing Cards—Possible Injuries.** The card should also warn evacuees of the possible injuries that may result from using the area near the vortex generators as a slide.

**3-3487 MCDONNELL DOUGLAS DC-8-61 ESCAPE TAPES.** As a result of a DC-8-61 ditching demonstration, it was determined that the forward window overwing escape tapes on each side of the aircraft cannot be used during ditching. These forward escape tapes were found to be approximately 12 inches too short to reach the wing attach fittings located about midway of each wing. It was determined that the aft window overwing escape tapes on each side of the aircraft will reach the wing attach fitting. The air carrier should identify the specific tape on each side of the aircraft that will reach its fitting. This information should be reflected in the appropriate air carrier crewmember manuals and training programs.

**3-3488 BOEING 747 EMERGENCY LANDING CONSIDERATIONS.** The body landing gear on a B747 failed during an emergency landing. The aircraft tilted rearward and came to rest on its wing gear and tail section. As a result, forward escape slides were unsafe due to their steep deployment angles. Several persons were injured before the use of these exits was terminated.

**A. Overview.** Although the B747 is capable of being landed safely on either the wing gear or the body gear alone, studies indicate that a center of gravity (CG) in excess of approximately 25 percent mean aerodynamic chord (MAC) can create the above condition when the wing gear only is being used.

**B. Recommended Action.** Air carriers using the B747 should emphasize the consideration of fuel management and passenger relocation prior to landing. They should also consider emphasizing flow control during emergency egress so as to maintain a favorable CG and thus prevent a recurrence of this incident.

NOTE: As with all aircraft, crewmembers should continually assess the condition of escape slides to assure their usability.

**3-3489 DIFFERENCES IN AIRCRAFT CABIN EMERGENCY EQUIPMENT.** Wherever possible, air carriers should standardize the type and location of aircraft emergency equipment. For example, an airline with Boeing 737s and Airbus 320s could equip each aircraft with the same type of Halon fire extinguishers and locate them next to the forward and aft F/A seats, which are occupied by F/As during takeoff and landing.

**A. Differences in Location and Operation of Emergency Equipment.** When there are differences in the location or operation of emergency equipment, air carriers must ensure that crewmembers are familiar with these differences. Air carriers must familiarize crewmembers on differences by revising appropriate manuals. Air carriers issue these manuals to crewmembers before they are assigned duties onboard any of the affected aircraft.

**B. Difference Training and Competency Checks.** During the required emergency training, air carriers should give crewmembers training and competency checks regarding the equipment differences. Air carriers should develop a procedure so that items of emergency equipment are checked, by a crewmember designated in the appropriate company manual, to ensure that each item is properly stowed and serviceable. This procedure will increase crewmember familiarity with the location and operation of emergency equipment, and it is especially needed when there are differences in the location and operation of emergency equipment.

### **3-3490 CREWMEMBER PROTECTION FROM BLOODBORNE PATHOGENS.**

**A. Overview.** This section contains information and guidance for principal operations inspectors (POI) and cabin safety inspectors (CSI) (if applicable), and their air carriers concerning crewmember protection from incidental exposure to bloodborne pathogens. Although unlikely, it is possible that F/As could come in contact with body fluids contaminated with bloodborne pathogens. Therefore, air carriers should supply readily accessible, protective, impermeable gloves and have in place an infection control program consistent with Occupational Safety and Health Administration (OSHA) standards. Infection control programs for workers who could be exposed to bloodborne pathogens include exposure determination criteria, infection control plans, methods of compliance, and work place controls. Also, refer to the current edition of Advisory Circular (AC) 120-44, Air Carrier First Aid Programs.

**B. Infection Awareness Programs.** POIs and CSIs (if applicable) should advise their assigned air carriers to have an infection awareness program consistent with OSHA standards. These standards provide information about the prevention of infectious diseases, especially those caused by bloodborne pathogens. POIs and CSIs should ask their air carriers to provide protective impermeable gloves on the aircraft in sufficient quantities to equal the number of medical and first aid kits.

**3-3491 RESETTING TRIPPED CIRCUIT BREAKERS.** Historically, flightcrews, maintenance personnel, and airplane ground servicing personnel (e.g., airplane cleaners, airplane fuelers, and baggage loading personnel) have viewed the resetting of a tripped circuit breaker as a relatively common occurrence in operations. Generally, resetting a tripped circuit breaker is met with no adverse results. However, a review of Service Difficulty Reports (SDR) involving tripped and reset circuit breakers reveals that the opposite is sometimes true. Smoke, burned wires, electrical odors, arcing, and loss of related aircraft systems have been reported as a result of resetting tripped circuit breakers.

**A. Overview.** Airplane manufacturers normally provide guidance in their Flightcrew Operating Manuals (FCOM), maintenance manuals, and airplane servicing manuals that enables flightcrews, maintenance personnel, and airplane ground servicing personnel to perform their tasks with a high degree of safety. This guidance generally addresses the resetting of tripped circuit breakers. Air carriers should ensure that specific circuit breaker resetting procedures based on the manufacturer's guidance are reflected in their manuals. The Federal Aviation Administration (FAA) has developed the following summary statement to emphasize the importance of caution in resetting tripped circuit breakers and to recommend certain general safety practices.

**B. Training Programs and Manuals.** The following statement summarizes FAA philosophy, policy, and regulations in respect to resetting tripped circuit breakers. The overriding message is one of caution. Air carriers should develop training programs and manuals for use by flightcrews, maintenance personnel, and airplane ground servicing personnel in which company policies and procedures with regard to resetting tripped circuit breakers are clearly stated and readily available. Pertinent policies and procedures should promote general awareness of safety concerns associated with resetting tripped circuit breakers and should stress the importance of strict adherence to specific safety guidance generated by the manufacturer.

**1) General.** There is a latent danger in resetting a circuit breaker tripped by an unknown cause because the tripped condition is a signal that something may be wrong in the related circuit. Until it is determined what has caused a trip to occur, flightcrews, maintenance personnel, or airplane ground servicing personnel usually have no way of knowing the consequences of resetting a tripped circuit breaker. Resetting a circuit breaker tripped by an unknown cause should normally be a maintenance function conducted on the ground.

**2) In-Flight.** A tripped circuit breaker should not be reset in-flight unless doing so is consistent with explicit procedures specified in the approved operating manual used by the flightcrew or unless, in the judgment of the captain, resetting the circuit breaker is absolutely necessary for the safe completion of the flight. A detailed logbook writeup is a proven safety practice for tracking purposes, and may provide maintenance personnel with the key to prompt troubleshooting and effective corrective action on the ground. The writeup should include the following:

- The conditions existing when the circuit breaker trip occurred,
- The conditions existing when the circuit breaker was reset, and
- The results of resetting the circuit breaker.

**3) On the Ground.** A circuit breaker tripped by an unknown cause may be reset on the ground after maintenance has determined the cause of the trip and has determined that the circuit breaker may be safely reset. A circuit breaker may be cycled (tripped or reset) as part of an approved troubleshooting procedure, unless doing so is specifically prohibited for the conditions existing. If an air carrier's minimum equipment list (MEL) contains procedures that allow a tripped circuit breaker to be reset, then the same cautions with reference to resetting tripped circuit breakers identified elsewhere in this bulletin also apply.

**4) Fuel Quantity Indicating System (FQIS).** Circuit breaker associated with FQIS.

**5) Fuel Pumps and/or FQIS.** Special caution is appropriate where fuel pumps and/or FQIS are involved, because of the possibility that arcing might lead to ignition of fuel or fuel vapors. The FAA has issued Airworthiness Directives (AD) affecting certain airplane makes and models that: (1) prohibit the resetting of fuel boost pump circuit breakers inflight, and (2) prohibit resetting a fuel boost pump circuit breaker while the airplane is on the ground without first identifying the source of the electrical fault. Because of similar arcing potential, resetting FQIS circuit breakers should be likewise restricted.

**3-3492 PROCEDURES FOR OPENING, CLOSING, AND LOCKING OF FLIGHTCREW COMPARTMENT DOORS.** See Volume 3, Chapter 2, Section 1, paragraph 3-47 for guidance.

**RESERVED.** Paragraphs 3-3493 through 3-3510.