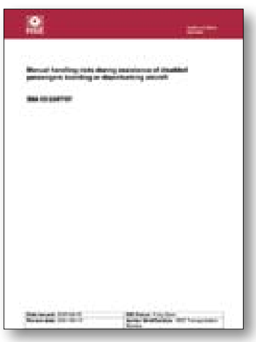
Handle With Care

Appropriate equipment is the key to helping disabled passengers board and exit the aircraft.



REPORTS

Manual Handling Risks During Assistance of Disabled Passengers Boarding or Disembarking Aircraft

U.K. Health and Safety Executive Transportation Section. Sector Information Minute (SIM) 05/2007/07. August 2007. 15 pp. References, appendixes. Available via the Internet at <www.hsenews.com/2007/08/22/manual-handling-risks-assisting-disabled-aircraft-passengers>.

Transferring disabled passengers to and from aircraft usually presents no significant problems when boarding or exiting through an airbridge. However, as the report notes, "Not all gates have this facility, some smaller aircraft are incompatible with airbridges and in some cases airlines may choose not to use the airbridge. In these cases, passengers are required to embark by walking (or traveling by bus) across the ramp and ascending steps up into the aircraft." Passengers unable to manage the alternative means of transit must be accommodated, according to the law in the United Kingdom and some other countries.

"Handlers are required to raise (or lower) a passenger and possibly their wheelchair, which may total in excess of 100 kg [220 lb], through several meters," the report says. "Given these facts, it is clear that some form of mechanical assistance is required and training and communication are of particular importance if team handling is involved."

The report says that secure and efficient transfer of disabled passengers is enhanced by using:

- A scissor-lift vehicle. "The wheelchair passenger is pushed into the vehicle at ground level, [and] the lift is then raised mechanically to a height level with the aircraft entrance and the passenger can be wheeled into the aircraft," the report says. "This removes any requirement for manually lifting the passenger."
- A boarding chair. "Boarding chairs are specifically designed to be used for aircraft boarding," the report says. "Generally they will be much narrower than a standard wheelchair to enable access down the aisle once aboard the aircraft."
- Battery-powered wheelchairs and stair climbers, "some of which are designed specifically with compact dimensions which enable them to maneuver in limited space and negotiate the aircraft steps and aisle," the report says. "They are also fitted with harnesses and head rests."

Manually carrying the passenger is the worst option. "This presents a high risk to the handler (and the passenger), cannot be performed by less than two people and must be avoided, except in emergency situations if no alternative is available."

Even the recommended equipment is not ideal, says the report. For example, with a scissor-lift, "the height range of the platform on which the passenger is lifted will not be compatible with all

aircraft. If the device is mounted on the back of a vehicle and the lifting platform extends over the top of the vehicle cab, the cab restricts the minimum height, and this can be a problem for small aircraft. … For larger aircraft, the maximum platform height may not reach the aircraft entrance."

The report says, "The successful use of lifting aids will depend on the equipment available, the efficient maintenance of the equipment, and the communication between aircraft/airline and the ground handlers, to ensure the equipment is available at the gate."

Specifications and standards for equipment are listed, as is guidance for inspectors of airline practices for conveying disabled passengers on and off aircraft.

Prediction and Classification of Operational Errors and Routine Operations Using Sector Characteristics Variables

Pfleiderer, Elaine M.; Manning, Carol A. U.S. Federal Aviation Administration (FAA) Office of Aerospace Medicine. DOT/FAA/AM-07/18. Final report. July 2007. 16 pp. Tables, references. Available via the Internet at <www.faa.gov/library.reports> or from the National Technical Information Service.*

In the U.S. air traffic control system, an operational error (OE) is any violation of aircraft separation standards as defined by the FAA. Logic suggests that variations among airspace sectors play a part in the relative frequency of OEs in different sectors — otherwise, over time, the numbers would be essentially equal. But "some sectors are more prone to OEs than others," the report says.

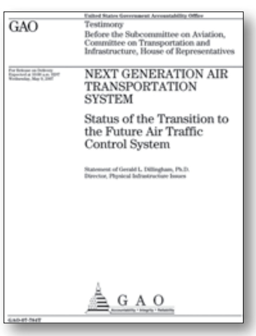
Many studies have looked at the relationship between sector characteristics and the occurrence of OEs. "Most of this work has been done without reference to routine operations (ROs)," the report says. "Yet, for every OE that occurs in a sector, there are hundreds (possibly thousands) of hours in which an OE did not occur. To truly understand the environmental and contextual factors that contribute to OEs, it is necessary to identify what was different about the sector environment at the time the OE occurred."

This report describes a study of the ability of selected measures to predict and classify OEs and ROs using logistic regression analysis. Logistic regression is a statistical technique designed to predict whether an event of interest will occur.

Sector characteristics were derived for traffic samples from high-altitude and low-altitude sectors. In the high-altitude sector sample, variables included the number of heading changes, the number of transitioning aircraft and average control duration. In the low-altitude sector sample, variables were the number of point-outs [transferring the radar identification of an aircraft to another controller without transferring radio communication because the aircraft will be in the other's airspace only briefly], the number of handoffs and the number of heading changes.

"In the high-altitude [sector] sample, every heading change that occurred increased the likelihood of an OE by 128 percent, every transitioning aircraft increased the likelihood of an OE by 26 percent and every one-second increase in average control duration increased OE likelihood by 2 percent," the report said.

In the low-altitude sector sample, "every point-out that occurred increased the likelihood of an OE by 230 percent, every handoff increased OE likelihood by 54 percent and every heading change increased OE likelihood by 49 percent."



Next Generation Air Transportation System: Status of the Transition to the Future Air Traffic Control System

Dillingham, Gerald L. Testimony before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, U.S. House of Representatives. U.S. Government Accountability Office (GAO). GAO-07-784T. May 9, 2007. 31 pp. Available via the Internet at <www.gao.gov> or from the GAO.**

The Next Generation Air Transportation System (NextGen) is intended to provide state-of-the-art technologies and procedures for air traffic control in U.S. airspace ("Technology Can Reduce Runway Mishaps," p. 36, and "Seeking Guidance," *ASW*, 9/07, p. 12). The congressionally authorized Joint Planning and Development Office (JPDO) was established to facilitate NextGen activities. Dillingham's testimony focused on the progress the U.S. Federal Aviation Administration (FAA) is making in implementing a foundation for managing the transition to NextGen, the status of the JPDO's planning for NextGen, and the challenges that the FAA and the JPDO face.

"During the last few years, FAA has made significant progress in implementing business-like operations and procedures for managing and acquiring air traffic control systems which have improved FAA's management of the current system and should better position the agency to manage the enormously complex transition to NextGen," Dillingham said. "However, further work remains to fully address past problems in acquiring systems and institutionalizing changes throughout the agency."

By creating the Air Traffic Organization — a performance-based office to administer and improve the FAA's modernization plan — and appointing its chief operating officer, the FAA has established a new management structure and adopted business best practices to address "the cost, schedule and performance shortfalls that have plagued air traffic control acquisitions," Dillingham said.

The JPDO has made progress on its key planning documents such as a concept of operations, an enterprise architecture — the technical description of NextGen, similar to blueprints for a building — and an integrated work plan, Dillingham said. Nevertheless, "JPDO is fundamentally a planning and coordinating body that lacks authority over the key human and technological resources of its partner agencies" such as the departments of Transportation, Commerce, Defense and Homeland Security.

Dillingham said, "Of critical importance in the area of NextGen research is human factors research, given the fundamental changes that NextGen envisions in the roles of air traffic controllers and pilots due to automation and changes in surveillance technologies and communications. JPDO has suffered from a lack of stable leadership and is now functioning under its third director. The issue is exacerbated by JPDO's senior policy committee, which has met only four times and has not met at all as a formal body since November 2005.

"Finally, JPDO faces a continuing challenge in ensuring the involvement of all key stakeholders, such as active air traffic controllers and technicians. Our work on past air traffic control modernization projects has shown that a lack of stakeholder or expert involvement early and throughout a project can lead to costly increases and delays."

WEB SITES

NASA Icing Branch, <icebox-esn.grc.nasa.gov/index.html>

The Icing Branch, part of the U.S. National Aeronautics and Space Administration (NASA) research and technology organization, has developed numerous education and training aids concerning aircraft icing safety for pilots and aircraft operators. Its opening Web page describes the organization's purpose and projects. The Web site provides information on education, training aids and multimedia resources produced by the Icing Branch.

The education and training aids section describes computer-based and Web-based products about ground and in-flight icing. Most education products resulted from the collaborative efforts of government, industry and academia — including NASA, the U.S. Federal Aviation Administration and the Air Line Pilots Association, International. Sources for obtaining products, individually and in bulk, are given.

Additional resources include a list of icing-related documents with links to free, full-text articles, ground icing checklists and a decision-making flow chart that may be downloaded at no cost.

Some training products are fee-based. Others are free online, such as two Web-based training courses: "A Pilot's Guide to In-Flight Icing" and "A Pilot's Guide to Ground Icing," which its creators say is "primarily intended for pilots who make their own operational deicing and anti-icing decisions [including] private pilots as well as those who fly business, corporate, air taxi, or freight operations in fixed-wing aircraft."

According to the course description, "A Pilot's Guide to Ground Icing" covers:

- Risks and problems created by ground icing;
- Anticipating and detecting ground icing;
- Aircraft deicing/anti-icing fluids; and,
- Deicing operations.

The course introduction says experienced pilots can reinforce knowledge acquired during many years of commercial and airline flights, expand their knowledge base in specific areas or dispel erroneous icing theories.

The course is self-paced, requiring one to three hours, depending on the number of course topics (modules) and related information that users explore. The program design is user-friendly and allows customization to create a personal training syllabus. This multimedia course uses computer-based training techniques, such as interactive animation, videos and multiple pop-up screens.

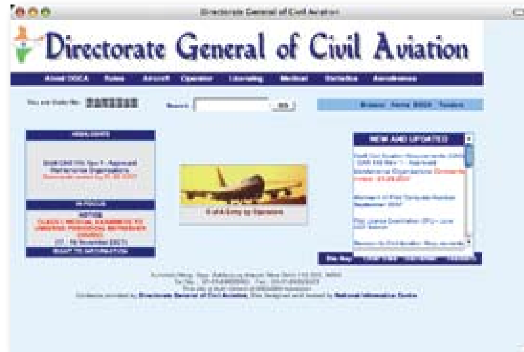
The online tutorial and help icon provide assistance with navigation, special features, system requirements and operational issues.

Directorate General of Civil Aviation (DGCA) India, <dgca.gov.in>

The explanatory note on the Web site says, "The Directorate General of Civil Aviation is the regulatory body in the field of civil aviation primarily dealing with safety issues. It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety and airworthiness standards."

The DGCA India Web site contains the following full-text materials:

- India's Civil Aviation Requirements;
- Annual accident summaries from 1990 through 2005 in English and Hindi;



- Advisory information circulars categorized by airport, flight crew, operations, air transport, air safety and airworthiness;
- Handbooks and manuals, such as the *Handbook on Medical Assessment of Civil Flight Crew*;
- A list of regulatory materials and airworthiness directives that link electronically to civil aviation authorities in Australia, Canada, France, the United Kingdom, the United States and several other countries;
- Annual *India Air Transport Statistics* reports from 1997 through 2006 in English and Hindi; and,
- Bilateral air service agreements for 2005, 2006 and 2007.

The annual statistical reports contain comparative statistics by airline, showing domestic and international flights, fleet strength and aircraft utilization. Additional tables depict scheduled and nonscheduled, passenger and cargo operations; passenger and traffic movements; financial results; and staffing.

Most information at this Web site is specific to India. ●

Sources

* National Technical Information Service
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Internet: <www.ntis.gov>

** Government Accountability Office
441 G St. NW, Room LM
Washington, DC 20548 U.S.A

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