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Consistent Use of 'Silent Review' Supports Quick, Correct Actions

By focusing on relevant procedures and conditions prior to takeoff and landing, flight attendants increase the probability of responding correctly to an emergency. Many civil aviation authorities and air carriers worldwide recommend or require silent review, a practice compatible with knowledge of human factors and situational awareness.

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FSF Editorial Staff

Concentration on safety-related duties can be difficult when cabin crews are responding to passenger requests and performing other service-related duties. Nevertheless, cabin safety specialists in several countries believe that the consistent practice of silent review is a basic element of preparation for aircraft emergencies.

Although terminology varies, silent review of emergency procedures and environmental conditions — just before takeoff and landing — has become an indispensable part of cabin-safety discipline among many air carriers.[1] The practice has been endorsed, or is expected to receive formal endorsement in the near future, by the Global Aviation Information Network (GAIN), an international, cooperative program of data sharing and analysis, conducting annual conferences and identifying current and emerging aviation safety problems; the International Civil Aviation Organization (ICAO); the International Air Transport Association (IATA); and the U.S. Federal Aviation Administration (FAA).

One indication of its importance was the November 2001 decision by ICAO to add silent review to its *Procedures for Air Navigation Services–Operations* (PANS–OPS).[2] Silent review has universal applicability, said Capt. Daniel Maurino, coordinator of the ICAO Flight Safety and Human Factors Program Personnel Licensing and Training Section and chairman of the ICAO Human Factors Study Group.[3]

"Given that worldwide consultation took place before the amendment to the PANS–OPS was adopted by the ICAO Council, and that no objections were raised by any country, it would follow that the silent-review process is a widely adopted practice," Maurino said. "PANS–OPS … amplify basic principles contained in ICAO Standards and Recommended Practices [SARPS], … the materials in SARPs are suitable for application on a worldwide basis, and the uniform application of the materials is considered essential."

Training flight attendants to adopt mental-preparation techniques for emergencies is a recurrent theme in ICAO's guidance material.

"That cabin attendants rarely experience an emergency situation requiring the use of their safety-related training could affect their mental preparedness to handle sudden emergency situations," says the ICAO *Training Manual*. "Any in-flight emergency will require flight attendants to immediately transform themselves from amiable and ready-to-please airline public relations employees into assertive leaders, responsible for the safety of every person on board the aircraft. … Cabin

attendants should be encouraged to mentally rehearse emergency procedures during normal flights and review the location and use of emergency equipment during preflight checks."[4]

Michael Anderson, manager, Inflight Services for IATA, said that IATA's Cabin Safety Working Group in April 2002 will develop a recommendation about silent review as an addition to the next edition of the *IATA Inflight Management Manual*.[5]

"The reason silent review was added to the agenda is that it is missing from our manual as a recommended best practice," Anderson said. "From IATA's standpoint, it would be good to have a reference to it in our manual for member airlines to adopt the policy." He said that some flight attendants do not perform silent review consistently, despite its inclusion in initial training and recurrent training and despite their carriers' requirements.

Silent review has been mentioned infrequently in formal studies and in the safety recommendations of accident reports, but the emergency experiences of flight attendants have generated many anecdotal endorsements, said several cabin safety specialists.

Among the most widely known is a statement by Kelly Duncan, a flight attendant who survived the Air Florida Flight 90 accident near Washington, D.C., U.S., during takeoff Jan. 13, 1982.[6,7]

Duncan said, "One thing that I do now [since the accident, but] I never did before. … Before, when I'd be taking off, I might have been thinking about … clothes or guys or something else. But I think now I really take the time out to kind of refresh my memory on what I'm going to do to prepare myself and be prepared — because I wasn't prepared at all. I was thinking about a million other things when we took off."

Since her experience, Duncan's endorsement of the silent-review process has been supported by scientific observations about what is required for peak performance during emergencies.

Mica Endsley, Ph.D., president of SA Technologies of Marietta, Georgia, U.S., said that some insights from studies of situational awareness, memory and attention among pilots also are useful in understanding how silent review works for flight attendants. Endsley has specialized in human situational awareness research as a former visiting associate professor in the Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S., and as a former associate professor of industrial engineering at Texas Tech University, Lubbock, Texas, U.S.[8]

She has defined situational awareness as "the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future." Aircraft crewmembers' most basic situational awareness is their perception of the status, attributes and dynamics of critical factors in the environment, she said. At a higher level of situational awareness, crewmembers integrate environmental factors with their knowledge and understand the significance of these factors in relation to their goals. At the highest level of situational awareness, crewmembers are able to function in the most timely and effective manner because they project the future status of environmental factors and take action based on anticipation of what will happen in the very near future.[9]

Silent review may help flight attendants to direct more attention to information that is linked to training-related patterns stored in their long-term memory. This is important for recognizing the need to perform procedures that are practiced rarely, she said.

"People who have the highest levels of situational awareness are doing contingency planning: thinking about all possible 'what if?' scenarios for problems," Endsley said. "Essentially, they are making themselves more receptive to cues and quicker to act because they already have solutions 'preloaded' in their working memory. When people who have high levels of expertise do contingency planning, the process of dealing with critical situations looks effortless, whereas other people must spend a lot of time deciding what to do."

A flight attendant with high-level situational awareness knows that a small cue (comprehension) — the noise of a strap caught in an aircraft door in flight — is significant by recognizing the seriousness of any object that might be ingested into an engine (projection), she said. An inexperienced passenger probably would not recognize the seriousness of the same cue.

"Most of the time, comprehension and projection do not occur instantly; rather, people have mental models, or templates of knowledge, that allow rapid pattern matching," Endsley said. "A flight attendant will think 'This is just like what I saw in training or what I saw last month' — and know what to do. People do not have to experience everything directly. Stories told by other people enable them to [learn from] events vicariously."

Performing the same duties automatically (that is, repetitively with the same outcome) may reduce attentiveness to unusual cues or unexpected cues, so one purpose of written checklists in aviation is to guard against overlooking such cues, she said.

Consistent use of silent review also may help to build a common level of crew situational awareness — a shared mental model that is helpful in responding to an emergency as a team, Endsley said.

"The important thing is for crewmembers not to be reviewing things that are different from what other crewmembers are

reviewing," she said. "The key is making sure that the content of silent review is consistent and correct — that the process has not morphed [changed significantly] over time as mental lists are apt to do. Flight attendants will want to make sure they are mentally rehearsing correct information."

Various studies show that other factors such as workload and stress also influence situational awareness, she said.

"Under stress, people often are not as efficient in taking in new information; they may have attentional narrowing or concentrate on negative information," she said. "People also are better at recalling well-learned information under stress than in generating novel solutions. They remember the pattern they have 'drilled' into long-term memory."

The use of a mnemonic (a word made up of the first letters of memorized checklist items) has several benefits, she said. Some Australian air carriers, for example, have adopted the mnemonic "OLDABC": operation of exits; location of emergency equipment; drills (brace for impact); able-bodied passengers and disabled passengers; brace position; and commands.[10] One benefit of this memory aid is organizing and prioritizing items correctly so that they do not reinforce error or lead to incorrect actions, Endsley said.

Ideally, memory aids also reinforce the flight attendant's expectation of a possible need to go into emergency mode, she said.

Although silent review has been practiced widely among U.S. flight attendants for decades, some exceptions and inconsistencies have been observed by a U.S. flight attendant union.

Candace Kolander, air safety and health coordinator of the Association of Flight Attendants (AFA), said that a few AFA-member flight attendants for major air carriers and regional air carriers have observed that silent review sometimes is not included in the flight attendant manual and that silent review sometimes is not required. Some also believe that silent review is beneficial primarily when flying on multiple aircraft types because silent review can provide an important reminder of the airplane type and how each assigned door operates, she said.[11]

Silent review has been part of Canadian flight attendant training since the early 1970s, said Frances Wokes, chief, cabin safety and standards, Transport Canada.[12]

"The majority of accidents occur during the time between takeoff and the first few minutes of flight, as well as during the last few minutes before landing and during the landing," Wokes said. "If you take a typical flight, however, the process is hectic in getting passengers on board and seated and stowing everything. It's not uncommon for flight attendants to be thinking ahead about the food and beverage service for the passengers, paperwork and dealing with special-attention passengers."

Silent review focuses each flight attendant's attention on the primary safety function instead of these logistics, she said.

"If an accident happens on takeoff, the flight attendant doesn't have to spend so much time in the 'disbelief' stage — thinking 'this can't be happening to me' — because he or she is already mentally focused on what to do *when* it happens, not *if* it happens," Wokes said. "A flight attendant sitting on the jump seat in a relaxed manner, reading a magazine and drinking a cup of coffee, is not likely to be able to respond as fast as someone who is in a [brace] position and has just completed a silent review."

Because Transport Canada's *Flight Attendant Manual Standard* includes silent review as part of initial training on pre-takeoff/pre-landing safety procedures, flight attendants for Canadian air carriers can expect their performance to be evaluated indirectly by cabin safety inspectors, she said.

"If an inspector sees flight attendants reading a magazine or chatting with other crewmembers just before takeoff or landing, silent review definitely would be discussed," she said. "This does not occur often, but if flight attendants are not following a procedure as basic as that, there probably will be other important safety practices the inspector needs to emphasize."

Australian air carriers have used a training video that draws parallels between flight attendants' silent review and the mental preparation techniques of an Australian skydiving team; techniques are explained in the video by coaches from the Australian Institute of Sport, said Julie Martin, senior air safety auditor, Cabin Safety, Civil Aviation Safety Authority of Australia (CASA), and several colleagues in the Asia Pacific Cabin Safety Working Group.[13]

"The video emphasizes that in activities that cannot be simulated easily on the ground under normal circumstances — evacuations, formation skydiving, etc. — visualization and mental review have been identified as a way of preparing for efficient performance of the task," Martin said.

Flight attendants typically are required by the airline to know the silent-review procedure during annual proficiency assessments and line checks, in which performance of silent review is a standard operating procedure, she said.

Australian civil aviation regulations do not require that flight attendants perform silent review prior to takeoff or landing. Nevertheless, flight attendants are required to be proficient in emergency procedures and to demonstrate proficiency annually in a test of theory and practice, and silent review has been identified as a tool that assists cabin crews in reaching and maintaining the proficiency required by standards.

"The important thing is to get the message across to cabin crews that this is a tool that they can use to help themselves," Martin said. "The possibility of boredom, monotony and complacency is offset to some degree because no one takeoff is going to be the same as other takeoffs … the number and makeup of passengers, the sector being flown — for example, over water — aircraft type, exit operation and emergency equipment location may change on each day, or even on each flight."

CASA, like civil aviation authorities in several other countries, endorses silent review as a safety practice, but the decision to incorporate silent review in policy, procedures and training rests with individual airlines.

Silent review should be reinforced during preflight briefings of the cabin crew, said Susan Rice, a cabin safety inspector for CASA.[14]

"I was a purser for 14 years, and in every preflight briefing [the airline's flight attendants] emphasized the importance of silent review," Rice said. "No chatting about the fun you had the night before, no chatting about recipes, no reading magazines. For approximately 60 seconds out of the flight time, conduct a silent review — it could be the difference between making the right decision or the wrong decision."

Another CASA inspector said that some air carriers in the region have expanded the silent-review concept.

Sheryl Gallagher, cabin safety inspector, Airline Operations Branch, CASA, said that flight attendants in the South Pacific and Australia typically are trained to begin silent review after sitting in the jump seat and fastening the shoulder harness, and to continue silent review until they release their restraints to perform other duties.[15]

"These flight attendants are encouraged to 'think outside the square' [unconventionally], to use silent review as a refresher and to adapt to the environment," said Gallagher, based on her experience with seven air carriers in the region. "During takeoff and landing, crew are required to have their hands free and to be ready to brace."

The value of silent review as a useful "survival tool/coping mechanism" has been demonstrated by cabin crews in several incidents, and the practice has become more structured over time, said Jerry Reilly, safety programs manager (communications), at Qantas Airlines in Australia.[16]

"Flight attendants must be persuaded of its value," Reilly said. "We use the [parallel] examples of flight crews rehearsing rejected-takeoff procedures, top-flight athletes (such as formation freestyle skiers) and military [missions]."

Some Scandinavian flight attendants who have performed silent review for many years will encounter more structured documentation of the practice in 2002.

Bibi Juul-Hansen, emergency coach for SAS [Scandinavian Airlines System] Flight Academy in Denmark, said that silent review — also called "silent moment" and "30-second review" — already is part of initial and recurrent training for flight attendants, and the subject is part of crew resource management training.[17]

"Specific items have been highlighted in bold print on the cabin emergency checklists — items the cabin crew shall know by memory during any phase of flight," Juul-Hansen said. "We mostly train about the silent moment in connection with cabin mock-up training of normal [procedures] and emergency procedures and phases of flight where the student should be aware of 'who you are and what you are trained for.' We also train a lot on 'be prepared for the unexpected.' We know that most emergency landings are conducted with minimal time to prepare — you often do not have time to read a checklist — so we have stressed the importance of the memorized items prior to an evacuation of the aircraft."

She said that the airline's memory items for silent review comprise:

- Evacuation signal on;[18]
- Emergency lights on;
- Orders of evacuation;
- Check outside conditions before opening doors (exit safe for use);
- Use commands to maximize the speed of passenger evacuation;
- Check that the flight deck and cabin are empty; and,
- Gather aircraft occupants after the evacuation.

"We are currently working on implementing more details about silent moment in our manuals," she said.

Juul-Hansen said that one SAS training film — drawing lessons from an accident that occurred four minutes after takeoff — stresses the importance of situational awareness during takeoff and landing. Another SAS film, designed for recurrent training, discusses the psychological aspects of involvement in an accident and reinforces the importance of silent review, she said. The academy also uses a training film by Lufthansa German Airlines to introduce the subject before teaching the SAS procedures.

As an example of safety practices shared in the United States among members of the Air Transport Association of America, American Airlines (AA) has had a longstanding policy requiring flight attendants to conduct silent review any time they occupy a jump seat during taxi, takeoff or landing, said Emmanuel Cabezas, AA manager of emergency procedures and training.[19]

"Silent review is primarily about being alert and being prepared to respond to an unexpected emergency using memorized actions — reading checklists would divert flight attendants' awareness of their surroundings," Cabezas said. "Performing any other activity during this time is prohibited per AA policy. The flight attendant should focus continually on emergency-response procedures during the critical phases of taxi, takeoff and landing. The procedure has evolved over the years based on feedback and review of past accidents and incidents … [and] is specific to each aircraft type and jump seat location. In light of recent increased security measures, the importance of flight attendant alertness has been stressed during every phase of flight, not just while performing silent review."

FAA — through its involvement in GAIN and its own current rulemaking for future flight attendant training — also has endorsed the practice of silent review.

Nancy Claussen, an FAA cabin safety inspector in Phoenix, Arizona, U.S., said, "FAA wholeheartedly supports silent review as a very important safety practice." Claussen represented FAA during 2001 on GAIN's Cabin Safety Team, Operator Safety Practices Working Group.[20]

"The Cabin Safety Team truly was a global group, and we agreed that silent review is a nonnegotiable part of any safe operation," Claussen said. "It is hard to find a U.S. airline that does not incorporate silent review into its procedures."

The resulting GAIN *Cabin Safety Compendium,*[21] published in December 2001, contains the following guidance for air carriers developing or revising their silent-review procedures: "Cabin crew should be seated and secured in assigned seats as soon as pre-takeoff safety responsibilities are met. During taxi, cabin crew should only leave assigned jump seats to perform duties related to safety of the aircraft and its occupants. Before each takeoff and landing, cabin crewmembers should complete a 'silent review' of evacuation responsibilities. Suggested topics for the 'silent review' should include, but not be limited to, the following:

- "Brace for impact;[22]
- "Judgment;
- "Crew coordination;
- "Evacuation;
- "Operation of assigned [exits] and alternate exits;[23]
- "Location of able-bodied passengers;
- "Location of disabled passengers requiring assistance; and,
- "Evacuation commands."[24]

Each of the suggested topics should be tailored to an air carrier's specific type of operations. "Brace for impact," for example, typically would require flight attendants to consider whether a jump seat is facing forward or aft and what the appropriate brace position would be, Claussen said. "Judgment" would focus on situational awareness, such as special considerations of taking off over water or in winter conditions.

"Crew coordination" would include answering questions such as, "What is the aircraft type?"; "What are my duties on this aircraft relative to other crewmembers?"; and "Am I responsible for the evacuation alarm or the emergency-lighting system switch?" "Evacuation" typically would focus on crewmember-specific procedures to be performed if an evacuation is required.

"Operation of assigned exits and alternate exits" would include assessment of doors with and without viewing ports and the correct sequence of procedures for operating the assigned exit and alternate exit, she said. "Location of able-bodied passengers" would include application of operator-specific procedures for identification of passengers, briefing of passengers, commands and getting these passengers to assist the cabin crew based on factors such as their selection during boarding, their seat location or their occupancy of exit seating.

"Location of disabled passengers requiring assistance" typically would be a reminder of the type of assistance needed (typically determined during a special briefing of the passenger), Claussen said. "Evacuation commands" — recommended intentionally as the last topic during silent review — typically would include the first words that all flight attendants shout for passenger bracing — such as "Grab ankles! Get down!" — before an impact or a sudden stop.

Additional topics reviewed in some training are: being aware of the nearest exits, verifying that the crewmember's seat belt and shoulder harness are secure, recognizing signs of emergency conditions, verifying slide inflation, remembering procedures for redirection if exits are blocked during evacuation, and visualizing actions outside the aircraft after evacuation.

"Silent review will be addressed in a new rule to revise cabin-crewmember training regulations and in any future FAA guidance attached to the rule," Claussen said. Currently, U.S. Federal Aviation Regulations (FARs) help to establish a working environment that supports silent review, but FAA does not require silent review or provide specific guidance, she said.

For example, FARs regarding the minimum number of flight attendants aboard the aircraft and requirements for seating/restraint of flight attendants help ensure that they are physically in place to respond quickly to emergencies, she said. Other regulations support flight attendants in being mentally prepared to respond to emergencies, such as restricting nonessential conversation with the flight deck during critical phases of operation.

"The responsibility rests squarely with the airline training department to ensure that flight attendants realize why silent review is important and why it needs to be done," Claussen said. "However, it is up to the individual flight attendant to ensure that he or she conducts a silent review before every takeoff and landing."♦

Notes

1. Koreltz-Elliott, Jean. "Cabin Emergencies: Are You Prepared?" *Cabin Crew Safety* Volume 24 (March–April 1989). FSF Editorial Staff with Richard DeMary. "Sudden Impact — A Flight Attendant's Story of Courage and Survival." *Cabin Crew Safety* Volume 30 (March–June 1995). The 1989 article said, "The '30-second review' on takeoffs and landings is a form of reinforcement, or super-conditioning, of those procedures taught initially and hopefully reviewed in each recurrent training session in a meaningful manner. It stands to reason that, if a person is already thinking about procedures and actions to be taken, he or she will tend to function more effectively and expeditiously when faced with an actual emergency."

   In the 1995 article, DeMary said, "I was flying the lead position, so I held a briefing with the other flight attendants [aboard USAir Flight 1016 on July 2, 1994]. … We have what's called a 30-second review. Just prior to landing or taking off, we think about 'What is my emergency exit?' 'What do I do if my exit is blocked?' 'Which way does the handle rotate?' 'What are my actions at the usable exits? What is my command or what is my brace signal?' 'What is the brace position?' … And the reason I say that — [in an accident, the training] all comes back to you — is because when I started to yell, 'Release seat belts and get out!' I found myself actually releasing my seat belt and getting out and it became a starting point [for taking action] and I think [that the command does the same thing] for the passengers. … I guess for all flight attendants, [an accident] should always be something that's in the back of your mind. It should be there because it does happen." U.S. National Transportation Safety Board (NTSB). Aircraft Accident Report no. NTSB/AAR-96/03: *Flight Into Terrain During Missed Approach, USAir Flight 1016, DC-9-31, N9554VJ, Charlotte/Douglas International Airport, Charlotte, North Carolina, July 2, 1994*. The aircraft collided with trees and a private residence shortly after the flight crew conducted a missed approach. Thirty-seven passengers were killed; two flight attendants and 14 passengers received serious injuries; and the captain, first officer, one flight attendant and one passenger received minor injuries. The aircraft was destroyed. NTSB, in its final report, said that the probable causes of the accident were "the flight crew's decision to continue the approach into severe convective activity that was conducive to a microburst; the flight crew's failure to recognize a windshear situation in a timely manner; the flight crew's failure to establish and maintain the proper airplane attitude and thrust setting necessary to escape the windshear; and, the lack of real-time adverse weather and windshear hazard information dissemination from air traffic control, all of which led to an encounter with and failure to escape from a microburst-induced windshear that was produced by a rapidly developing thunderstorm located at the approach end of Runway 18R." Contributing factors were "the lack of air traffic control procedures that would have required the controller to display and issue ASR-9 [a type of airport surveillance radar] weather information to the pilots of Flight 1016; the Charlotte tower supervisor's failure to properly advise and ensure that all controllers were aware of and reporting the reduction of visibility and the [runway visual range (RVR)] value information, and the low level windshear alerts that had occurred in multiple quadrants; the inadequate remedial actions of USAir to ensure adherence to standard operating procedures; and the inadequate software logic in the airplane's windshear warning system that did not provide an alert upon entry into the windshear."

2. International Civil Aviation Organization (ICAO). Amendment 11 to *Procedures for Air Navigation Services–Operations (PANS–OPS)*, Volume I, Part 13, "Standard Operating Procedures and Checklists," Chapter 3, "Crew Briefings." Nov. 1, 2001. Paragraph 3.5.5 says, in part, "Cabin crew briefings should prioritize all relevant conditions that exist for the departure and include, but not be limited to … silent review process … (Note — Silent review is the self-review of individual actions in the event of emergencies)." Among other terms for silent review are 30-second review, 20-second review, silent moment, special review, silent drill, silent 30 seconds and pre-takeoff review.

3. Maurino, Daniel. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Feb. 1, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

4. ICAO. *Training Manual*, Part E–1, "Cabin Attendants' Safety Training." Second Edition. 1996. This edition included silent review.

5. Anderson, Michael. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Jan. 31, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

6. Duncan, Kelly. Duncan was interviewed in "Accidents and Incidents," a videotape written and produced by Ken Clagett, Video Support Services, Eastern Airlines, for flight attendant training by Eastern Airlines In-flight Services. The date of production (in the early 1980s) was not available.

7. U.S. National Transportation Safety Board (NTSB). *Aircraft Accident Report, Air Florida, Inc., Boeing 737-222, N62AF, Collision With 14th Street Bridge, Near Washington National Airport, Washington, D.C. [U.S.], Jan. 13, 1982.* Report no. NTSB-AAR-82-8. Seventy passengers, four crewmembers and four people on the ground were killed; four passengers and one crewmember were seriously injured; one person on the ground was seriously injured; and three people on the ground received minor injuries when the aircraft struck a bridge during takeoff. The aircraft was destroyed. NTSB, in its final report, said that the probable cause was "the flight crew's failure to use engine anti-ice during ground operation and takeoff, their decision to take off with snow/ice on the airfoil surface of the aircraft, and the captain's failure to reject the takeoff during the early stage when his attention was called to anomalous engine instrument readings." Contributing factors were "the prolonged ground delay between deicing and the receipt of ATC [air traffic control] takeoff clearance during which the airplane was exposed to continual precipitation, the known inherent pitch-up characteristics of the B-737 aircraft when the leading edge is contaminated with even small amounts of snow or ice, and the limited experience of the flight crew in jet transport winter operations."

8. Endsley, Mica. Interview by Rosenkrans, Wayne. Alexandria, Virginia, U.S. Feb. 4, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

9. Endsley, Mica. "Situation Awareness in Aircraft." *Applied Aviation Psychology: Achievement, Change and Challenge.* In proceedings of the Third Australian Aviation Psychology Symposium (November 1995). Hayward, Brent J.; Lowe, Andrew R., eds. Aldershot, England: Avebury Aviation, 1996. 403-417.

10. Martin, Julie. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Feb. 1, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

11. Kolander, Candace. Interview by Rosenkrans, Wayne. Alexandria, Virginia, U.S. Jan. 29, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

12. Wokes, Frances. Interview with Rosenkrans, Wayne, and e-mail communication. Alexandria, Virginia, U.S. Jan. 29, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

13. Martin.

14. Rice, Susan. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Jan. 31, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

15. Gallagher, Sheryl. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Feb. 4, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

16. Reilly, Jerry. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Feb. 1, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

17. Juul-Hansen, Bibi. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Feb. 6, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

18. Transportation Safety Board of Canada. Aviation Occurrence Report A95H0015, *Rejected Takeoff/Runway Overrun, Canadian Airlines International [CAI], McDonnell Douglas DC-10-30ER, C-GCPF, Vancouver International Airport, British Columbia, 19 October 1995.* Although the term "silent review" could not be found among survival aspects discussed in accident reports from the 1990s, some reports include recommendations related to typical elements of silent review, such as evacuation signals. This report said, "Each of CAI's aircraft is equipped with an emergency-evacuation-warning audio signal, which can be activated from the cockpit or from the flight attendant control panel at door 2L to order an evacuation. … During this occurrence, the warning system was activated by the first officer just prior to the captain's order over the public address system to evacuate. However, the warning signal was not recognized by some flight attendants, reportedly because of the signal's low volume and its unfamiliar sound. The evacuation system was examined and the signal devices were found to be functional. … The volume of the evacuation signal on the occurrence aircraft exceeded the manufacturer's specifications. …"

19. Cabezas, Emmanuel. E-mail communication with Rosenkrans, Wayne. Alexandria, Virginia, U.S. Jan. 31, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

20. Claussen, Nancy. Interview by Rosenkrans, Wayne. Alexandria, Virginia, U.S. Feb. 5, 2002. Flight Safety Foundation, Alexandria, Virginia, U.S.

21. Global Aviation Safety Network (GAIN). *Cabin Safety Compendium*. December 2001. In early 2002, this document, the *GAIN Overview* and the *Operator's Flight Safety Handbook* were bookmarked and produced on compact disc by Flight Safety Foundation for distribution to all its members.

22. U.S. National Transportation Safety Board (NTSB). Aircraft Accident Report NTSB/AAR-96/04, *Runway Departure During Attempted Takeoff, Tower Air Flight 41, Boeing 747-136, N605FF, JFK International Airport, New York, December 20, 1995.* Although the term "silent review" could not be found among survival aspects discussed in accident reports from the 1990s, some reports include recommendations related to typical elements of silent review, such as brace commands. This report said, "Several flight attendants acknowledged seeing or hearing

things not associated with normal operations, such as crunching and tearing noises, engine separation, and significant spillage of carry-on luggage, during the airplane's off-runway excursion. However, only three of the 12 flight attendants on board the accident airplane shouted commands to passengers to 'Grab ankles! Stay down!' during the impact sequence. Because these commands are important instructions that can prevent or reduce passenger injuries, [NTSB] is concerned that nine of the flight attendants did not shout any commands, … the appropriate protective instructions at the first indication of a potential accident, even when flight attendants are uncertain of the precise nature of the situation."

23. Transportation Safety Board of Canada. Although the term "silent review" could not be found among survival aspects discussed in accident reports from the 1990s, some reports include recommendations related to typical elements of silent review, such as operation of exits. This report said, "One flight attendant indicated that, when the evacuation was ordered, door 1L failed to open on the first attempt, but opened properly on the second attempt. … The door and fittings were examined to the degree possible, and no defects that could impede the proper operation of the door were identified."

24. Although the term "silent review" could not be found among survival aspects discussed in accident reports from the 1990s, some reports include recommendations related to typical elements of silent review, such as evacuation commands. NTSB. Aircraft Accident Report no. NTSB/AAR-95/01, *Runway Overrun Following Rejected Takeoff, Continental Airlines Flight 795, McDonnell Douglas MD-82, N18835, LaGuardia Airport, Flushing, New York, March 2, 1994.* The report said, "Some passengers stated that there was a lack of guidance from the crew, with some reporting a sense of abandonment or similar words to describe their feelings prior to egress. Several passengers said that after the airplane came to rest, they did not hear commands from flight attendants. A male passenger reportedly stood up and yelled, 'Stay calm, don't panic.' which had a calming effect. Some passengers recalled hearing a flight attendant state, 'Come forward.'"

Further Reading From FSF Publications

FSF Editorial Staff. "Remaining Seated During Taxi, With Restraints Fastened, Encourages Safety Focus, Prevents Crewmember Injury." *Cabin Crew Safety* Volume 36 (September–October 2001).

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