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Small Talk in the Cockpit Is a Big Problem Requiring More Than Just Lip Service

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On August 27, 2006, a regional jet in a high speed takeoff roll at Lexington Kentucky's Blue Grass Airport ran out of runway before leaving the ground, crashing through an airport perimeter fence and barely missing a barbed wire fence before striking a row of trees, exploding, and breaking apart. Despite being given proper clearance by air traffic control to take off on Runway 22, which is 7,003 feet long, the pilots had mistakenly used Runway 26, which, at 3,500 feet, is too short for a regional jet to take off on. The crash was the worst aviation disaster in the United States since 2001, resulting in the death of forty-nine of the fifty people on board, while the co-pilot survived with severe injuries.

The National Transportation Safety Board is actively studying the factors that went into this horrible and obvious mistake, and one fact they are evaluating is that, at the worst possible time, the pilots had engaged in a discussion having nothing to do with the flight. After reviewing the cockpit voice recorder transcript, aviation professor Paul Czysz quipped, "[the pilots] seem to be talking about everything but what they're supposed to be doing."¹ Nearly the entire time they were running through their pre-flight checklists, the pilots made jokes and chit-chatted about such things as job opportunities, their children, and dogs.² This small talk continued as they pulled back from the gate and taxied to the wrong runway.

While the pilots should have been making sure they taxied past Runway 26 to Runway 22 before advancing the throttles for take-off, instead they had a forty second conversation about how co-workers were doing on tests.³

Experts may debate the role this conversation played in contributing to cause the crash, but they will agree the discussion violated the law. Federal Aviation Regulation 121.542 (the "sterile cockpit rule") forbids non-pertinent conversations at critical phases of flight, and the pilots' discussion about co-workers' test performances while they were taxiing for takeoff was a clear violation of the rule.

The sterile cockpit rule is now 26 years old, yet cockpit voice recorders recovered from crashed airplanes are still consistently revealing violations. What these cockpit voice recordings do not reveal, though, is the full extent of the problem, nor do they explain why so many well trained and intelligent pilots choose to break the rule.

This article will address the sometimes underestimated dangers of small talk by pilots during critical phases of flight and the need for pilots, their unions, the airlines, and the Federal Aviation Administration to do more to eliminate this problem. The article will begin by explaining the importance of the sterile cockpit rule and the circumstances that led to its implementation. The next section will discuss violations of the rule since its inception, with particular focus on the frequency of violations and the air disasters such violations have caused or contributed to. Next, arguments regarding the extent of compliance with the rule will be considered, after which the article will conclude pilots, their unions, the industry, and the FAA all must do more to eliminate non-pertinent conversations from occurring in cockpits during critical phases of flight and offer suggestions about how this may be accomplished.

The Sterile Cockpit Rule

Over the last 50 years, while there has been a significant decline in the rate of air disasters overall, "reductions in human-error related accidents have not kept pace with the reduction of accidents related to mechanical and environmental factors."⁴ In fact, the FAA recently confirmed that human error is now a contributing factor in 60 to 80 percent of all aviation incidents and accidents.⁵ Though it is unrealistic to eliminate human error entirely, some problems are more preventable than others, and, at first blush, unlawful talk at the wrong time seems like it should be one of the easiest dangers to eliminate. Experience, however, has proven otherwise.

The NTSB identified the problem of pilots engaging in small talk during critical phases of flight during its investigation into the crash of Eastern Airlines Flight 212 on September 11, 1974 in Charlotte, North Carolina.⁶ Flight 212 crashed 3.3 miles short of the intended runway, resulting in 72 fatalities. The probable cause of the crash was determined to be "the flightcrew's lack of altitude awareness at critical points during the approach due to poor cockpit discipline in that the crew did not follow prescribed procedures."⁷ Specifically, after analyzing the cockpit voice recorder (CVR), the NTSB made the following observation:

During the descent, until about 2 minutes and 30 seconds prior to the sound of impact, the flight crew engaged in conversations not pertinent to the operation of the aircraft. These conversations covered a number of subjects, from politics to used cars, and both crewmembers expressed strong views and mild aggravation concerning the subjects discussed. The Safety Board believes that these conversations were distracting and reflected a casual mood and lax cockpit atmosphere, which continued throughout the remainder of the approach and which contributed to the accident.⁸

On October 8, 1974, the NTSB issued safety recommendations to the FAA noting a disturbing trend of accidents involving unprofessional performance by the crew.⁹ The NTSB noted, "Investigations have revealed that crew behavior ranges from the casual acceptance of the flight environment to flagrant disregard for prescribed procedures and safe operating practices."¹⁰ Finally, after years of consideration, in 1981 the FAA responded by enacting Federal Aviation Regulations 121.542 and 135.100¹¹—"Flight Crew Member Duties," which state:

(a) No certificate holder shall require, nor may any flight crewmember perform, any duties during a critical phase of flight except those duties required for the safe operation of the aircraft. Duties such as company required calls made for such nonsafety related purposes as ordering galley supplies and confirming passenger connections, announcements made to passengers promoting the air carrier or pointing out sights of interest, and filling out company payroll and related records are not required for the safe operation of the aircraft.

(b) No flight crewmember may engage in, nor may any pilot in command permit, any activity during a critical

phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Activities such as eating meals, engaging in nonessential conversations within the cockpit and nonessential communications between the cabin and cockpit crews, and reading publications not related to the proper conduct of the flight are not required for the safe operation of the aircraft.

(c) For the purposes of this section, critical phases of flight includes all ground operations involving taxi, takeoff and landing, and all other flight operations conducted below 10,000 feet, except cruise flight.

Note.—Taxi is defined as “movement of an airplane under its own power on the surface of an airport.”

This regulation is now commonly referred to as the “sterile cockpit rule,” and it has become a basic principle of flight crew training and standard operating procedures. The purpose of the rule is to ensure the flight crew is properly focused during critical phases of flight by prohibiting distractions such as conversations not related to safe flight operation. Those critical phases, which include taxi, takeoff, landing, and operations conducted below 10,000 feet, are critical not only because the pilots have many safety tasks to conduct and monitor, but also because these phases of flight are when the most accidents occur.

Violations of the Rule and the Resulting Disasters

Unfortunately, since the rule was enacted in 1981, the NTSB's accident investigations have continued to discover an alarming number of sterile cockpit violations. For instance, in 1988, Delta Air Lines Flight 1141 rolled to a violent crash seconds after takeoff because the pilots failed to set the flaps, resulting in 14 fatalities and 26 serious injuries.¹² FAA records did not contain any incident or violation history on any of the crewmembers.¹³ However, the NTSB's investigation found the pilots were distracted by conversing with a flight attendant in the cockpit while taxiing for departure. The Safety Board stated its belief that “had the captain exercised his responsibility and asked the flight attendant to leave the cockpit or, as a minimum, stopped the non-pertinent conversations, the 25-minute taxi time could have been utilized more constructively and the flap position discrepancy might have been discovered.”¹⁴

Sterile cockpit violations were discovered in the investigation of another major airline disaster in 1994. On July 2, 1994, the pilots of USAir Flight 1016 decided to continue an approach into a rapidly developing thunderstorm near the beginning of the runway and encountered a microburst-induced windshear causing the plane to crash into trees and a private residence.¹⁵ The crash resulted in 37 fatalities and 16 serious injuries.¹⁶ The Safety Board expressed concern with the crew's failure to comply with standard operating procedures including the sterile cockpit rule, concluding that it "suggests that they, as well as other pilots, do not adhere to procedures during 'routine' flights and phases of flight."¹⁷ The Board reiterated the importance of the rule in its report, stating:

The sterile cockpit rule was implemented to reduce flight-crew distractions when situational awareness is most needed, such as during flight phases in close proximity to the ground. Regardless of the nature of the flight, the Safety Board believes that the flightcrew must devote full attention to the operation of the airplane. Literature on the study of human factors further underscores the importance of flightcrew attention to the environment. One noted expert stated:

Attention serves as an important constraint on situational awareness. Direct attention is needed for not only perception and working memory processing, but also for decision making and forming response executions.¹⁸

In the litigation following the crash, USAir denied liability for the crash, leading to the most recent full-blown trial in the U.S. on the liability of an airline for its' pilots negligence following an aviation disaster. During the trial, USAir's attorney illustrated a common belief held by many pilots in the airline industry, by asking the plaintiffs' lead pilot expert to admit he was "nitpicking" over mere sterile cockpit violations. Captain Patrick Clyne, a 747 captain for Northwest Airlines, responded by observing that there is a big difference between being an airliner captain who is ultimately responsible for the safety of a flight and its passengers as compared to most other jobs. He defended the wisdom of the sterile cockpit rule and other rules meant to make flying safer and stated that if these rules were nitpicking, then it was nitpicking for safety, and nitpicking he was proud of. The jury ultimately found USAir liable for the crash, rejecting its contention that the air traffic controllers' negligence was the sole cause.¹⁹

For the last 25 years, air transport pilots have known about the sterile cockpit rule and have been trained to follow it. Yet cockpit voice recorder data released after many recent crashes reveal frequent violations. The reason for this discrepancy should be studied and remedied. One possibility is that, despite their training, too many airline pilots fail to fully appreciate the danger of violating the sterile cockpit rule. This may help explain why, on numerous occasions, right on the heels of a major airline crash involving sterile cockpit violations, another crash has followed in which small talk in the cockpit again contributed.

For instance, less than four months after the USAir Flight 1016 crash, American Eagle Flight 4184 went into a rapid descent and crashed after icing developed while the plane was in an extended holding pattern, killing all 68 passengers and crew on board.²⁰ In its report, the NTSB observed:

In this accident, the flight crew did not indicate that it was concerned about holding in icing conditions, but the Safety Board notes that there were some potentially distracting events during the hold. The CVR recorded about 15 minutes of personal conversation between a flight attendant and the captain from 1528:00 to 1542:38. The CVR also recorded music playing for about 18 minutes, as well as the sounds of the captain's departure from the cockpit for about 5 minutes to use the rest room.²¹

Noting the plane was above 10,000 feet when these distracting events occurred (meaning the sterile cockpit rule technically might not have been in effect), the Safety Board recommended the airlines encourage captains to observe a "sterile cockpit" environment when an airplane is holding in meteorological conditions that have the potential to demand significant attention of a flight crew.²²

Despite the NTSB's repeated warnings, evidence establishes small talk in the cockpit has continued to be a big problem. On October 19, 2004, Corporate Airlines Flight 5966 struck trees on its final approach and crashed short of the runway at Kirksville Regional Airport in Kirksville, Missouri, resulting in 13 fatalities and two serious injuries.²³ The Safety Board concluded the pilots failed to follow established procedures to effectively monitor the airplane's descent rate and height above terrain and their "unprofessional behavior" during the flight likely contributed to their degraded performance.²⁴ According to the Board's report:

The captain, as the pilot-in-command, had the authority and responsibility to set the cockpit tone for the approach.

However, the accident captain was known among coworkers for his sense of humor and CVR evidence indicated that he emphasized fun in the cockpit. Had he emphasized the pilots' goals and strategies as they prepared for the nonprecision approach in night IMC, it is likely that the accident pilots would have suspended their humorous banter and engaged in only operationally relevant conversation below 10,000 feet msl. The captain's continued joking during this period established an inappropriate cockpit orientation for this phase of the flight and was not consistent with standard operating procedures. Both pilots' attitudes and inattention during subsequent operations demonstrated a lack of regard/respect for their responsibilities and duties.²⁵

* * * * *

The Safety Board concludes that the pilots' nonessential conversation below 10,000 feet msl was contrary to established sterile cockpit regulations and reflected a demeanor and cockpit environment that fostered deviation from established standard procedures, crew resource management (CRM) disciplines, division of duties, and professionalism, reducing the margin of safety well below acceptable limits during the accident approach and likely contributing to the pilots' degraded performance. Further, the Safety Board concludes that compliance with sterile cockpit rules likely would have resulted in an increased focus on standard procedures and professionalism during the accident flight. Further, there is no evidence to indicate that this flight crew was unique in their behavior. Therefore, the Safety Board believes that the FAA should direct the principal operations inspectors of all 14 CFR Part 121 and 135 operators to reemphasize the importance of strict compliance with the sterile cockpit rule.²⁶

The Safety Board's safety recommendation was published on February 7, 2006. On April 28, 2006, the FAA responded by issuing a Safety Alert for Operators (SAFO). The SAFO was issued "to emphasize the importance of the sterile cockpit rule."²⁷ The SAFO reiterated to the operators that compliance with the sterile cockpit rule is not only required, but also "makes irrefutable good sense since breaches of those rules continue to contribute to fatal accidents in air carrier operations."²⁸ That the FAA issued the SAFO, again trying to get the danger warning across to the piloting

community, is some evidence that significant portions of that community, regardless of their rhetoric, simply do not accept the premise that sterile cockpit violations by otherwise skilled pilots are dangerous. However, stronger evidence is that again, just months after the SAFO was issued, another major disaster occurred, and sterile cockpit violations were again discovered on the cockpit voice recorder.

On August 27, 2006, Comair Flight 5191 crashed at Blue Grass Airport in Lexington, Kentucky, after attempting to depart from the wrong runway. As mentioned in the introduction, Flight 5191 was supposed to take off on Runway 22, which is 7,003 feet long, but instead the captain mistakenly taxied the aircraft into takeoff position on the much shorter Runway 26, a 3,500 foot runway that was not long enough to accommodate the Canadair CL-600 aircraft.²⁹ He then turned the plane over to the first officer, who advanced the throttles and, when the aircraft was not airborne by the time the runway ended, it crashed into the airport perimeter fence and trees, resulting in 49 fatalities and 1 serious injury.³⁰

The crashes involving sterile cockpit violations exemplify the importance of the rule to flight safety. Irrelevant banter in the cockpit during critical phases of flight can be distracting and increases the risk of catastrophic mistakes.³¹ The danger is well documented. For example, this topic was studied back in 1993 by the NTSB's current Vice Chairman, Robert L. Sumwalt, who reported his results to the aviation community.

Sumwalt assembled and analyzed data from NASA's Aviation Safety Reporting System (ASRS) database (which allows flight crew members to file anonymous incident reports) and found serious problems attributable to sterile cockpit violations:

- 48 percent were altitude deviations;
- 14 percent were course deviations;
- 14 percent were runway transgressions;
- 14 percent were general distractions with no specific adverse consequences;
- 8 percent involved takeoffs or landings without clearance;
- 2 percent involved near mid-air collisions due to inattention and distractions.³²

According to Sumwalt's research, many of the reports contained acknowledgments by crew members that, "If we [had] adhered to the sterile cockpit, this situation probably would not have occurred." (ACN 118974).³³ The most common violations found were: (1) extraneous conversations between cockpit crew members; (2)

distractions from flight attendants; (3) non-pertinent radio calls and PA announcements; and (4) sight-seeing.³⁴ As Sumwalt noted, "[t]he sterile cockpit rule was designed to help minimize many of the problems that we just annotated. Judging from these reports, a safer operation can be achieved by simply abiding by the rule's guidelines."³⁵

Nevertheless, 14 years later it is clear that too many flightcrews still are not abiding by the rule's guidelines. Moreover, contributing to the problem is the lack of an effective auditing system, which means violations usually are not discovered unless there is an accident or incident, and even then there is only one-half hour of data. As a result, it is not possible to determine with any precision the frequency of sterile cockpit rule violations in the field, and the magnitude of the problem must be left to inference.

Still, the alarming number of accidents and incidents that ultimately reveal sterile cockpit violations proves that the violations pose a significant danger, the violations are very common, or both. Heightening suspicions that violations are common are the NTSB's findings in such crashes as USAir Flight 1016 and Corporate Airlines Flight 5966 that violators of the rule were qualified and experienced flightcrew members who did not appear to be uniquely sloppy or unprofessional. Therefore, while no study has been conducted to determine the exact rate at which sterile cockpit violations are occurring, these crashes reveal they are occurring too frequently, and something other than what is currently taking place is probably needed. But before stating our view about what is needed, a review of the status quo is appropriate.

Attempts to Promote Compliance

Since 1981, a variety of methods have been used within the aviation industry to encourage airline flightcrews to comply with the sterile cockpit rule. For instance, the rule has been incorporated into flightcrew training and education programs, and the FAA has encouraged compliance. The FAA's 1988 Advisory Circular on "Communication and Coordination between Flight Crewmembers and Flight Attendants," recommended that flight attendants "should receive special training regarding 'sterile cockpit' procedures so that they neither naively violate them nor hesitate to communicate relevant [safety-related] information to the flightcrew."³⁶ The FAA's 2003 Advisory Circular concerning flight crew procedures during taxi operations reiterated that maintaining a sterile cockpit is one of the most important guidelines flight crewmembers must follow in order to focus on their duties without distraction.³⁷

The FAA has also published advisory circulars for air carriers recommending particular methods to develop, implement, and update standard operating procedures and assess crew resource management.³⁸ The FAA's 2003 Advisory Circular "Standard Operating Procedures for Flight Deck Crewmembers" advised that standard operating procedures will be complied with more often when crewmembers understand the reasons for the procedure, effective training on the procedure is conducted, and the attitudes shown by instructors, check airmen, and managers all reinforce the need for the procedure.³⁹ In 2004, the FAA's "Crew Resource Management Training" Advisory Circular stated that effective training includes "awareness, practice and feedback, and continuing reinforcement" of CRM concepts, and that the "best results occur when the crews examine their own behavior with the assistance of a trained instructor."⁴⁰

Most recently, the FAA published its 2006 SAFO emphasizing the importance of the sterile cockpit rule. According to the SAFO, the director of safety of each carrier operating under Part 121 is encouraged to do the following:

- Become familiar with the circumstances of the accident in Kirksville, Missouri;
- Become familiar with the contents of this SAFO;
- Emphasize the importance of sterile cockpit discipline in flight crew operating manuals; and
- Emphasize sterile cockpit discipline in the CRM training provided to flightcrews.⁴¹

The NTSB recently told the FAA that more aggressive measures are needed to address pilots' unprofessional behavior in the cockpit. On January 23, 2007, the NTSB published its safety recommendations in light of Pinnacle Airlines Flight 3701, which crashed into a residential area about 2.5 miles south of the airport in Jefferson City, Missouri killing the captain and first officer and destroying the aircraft.⁴² The Safety Board concluded that one of the probable causes of the accident was the pilots' unprofessional behavior and deviation from standard operating procedures.⁴³ The NTSB observed the flight was a Part 91 repositioning flight with no passengers or other crewmembers on board, and this presented the pilots with an opportunity to aggressively maneuver the airplane and disregard defined procedures intentionally to make the job more interesting.⁴⁴ A key finding by the Safety Board was that, even when standard operating procedures are enacted by airlines,

one of the reasons unprofessional behavior still occurs is the perception of a low risk of detection.⁴⁵

While the Pinnacle Airlines report focused on the low risk of detection in the context of Part 91 flights, the same concern should apply to Part 121 flights with fare-paying passengers. Crew members simply are more likely to cut corners when they do not believe they will be held accountable for their conduct. This explains why traditional observation methods of pilots during check rides or line observations conducted by company check airmen or management personnel probably are insufficient. As the NTSB observed, "[a] problem with this method of oversight is that pilots might perform differently during a check ride or a line observation because of the presence of a company check airman in the cockpit."⁴⁶

As a result of this crash, Pinnacle Airiness' chief pilot stated that in future operations it would begin reviewing FDR data of Part 91 flights for violations so "the pilots will know that they're being monitored."⁴⁷ This statement recognizes the importance of effective oversight to deter pilots from cutting corners and violating standard operating procedures such as adherence to the sterile cockpit rule.

To be sure, the aviation industry has offered methods of monitoring pilots' adherence to standard operating procedures. For instance, air carriers can implement voluntary safety programs such as the Flight Operational Quality Assurance (FOQA), an FAA-approved program for the routine collection and analysis of FDR data gathered during aircraft operations.⁴⁸ However, FOQA does not allow oversight of compliance with verbal procedures such as the sterile cockpit rule, proper phraseology, and check list compliance.

The FAA has also approved the Aviation Safety Action Program (ASAP), a voluntary program that encourages pilots to report safety concerns in a non-punitive environment and allows the air carrier and FAA to take responsive action.⁴⁹ While helpful, this program relies on pilots to self-regulate, and its non-punitive environment may not serve as an effective deterrent.

Operators also may assess pilot performance during line operations with the Line Operations Safety Audit (LOSA), "an observational process that assesses CRM practices, the management of threats to safety, and human error during flight operations."⁵⁰ However, due to the confidential nature of the program, the operator is not given information about the particular pilots observed, and the program does not result in adverse actions against pilots who perform unsatisfactorily.⁵¹ Consequently, "pilots being observed do not view the LOSA observers as a threat (as they might

view company check airmen). . . ."⁵² While this allows for more accurate observations of how pilots are performing when an observer is not present, it again fails to provide an effective deterrent to individual pilots violating standard operating procedures.

Nevertheless, some pilots simply have not come to terms with the importance of the sterile cockpit rule, believing they are skilled pilots who can safely engage in small talk at critical phases of flight without danger of distraction. Such a belief is validated with every violation, and for them, the substantial efforts by the FAA, the airlines, and other pilots to spread the word about the danger and need for compliance amounts to nothing more than lip service. Similar attitudes prevailed among some people when automobile seat belts first became available and ultimately, laws requiring front seat belt use that were enforced brought almost everyone around.

Having established that compliance with the sterile cockpit rule is important for safety, and that there is a violation problem which could be rampant, we now turn to our recommendations for further study and better methods of surveillance, in order to more effectively encourage compliance and eliminate violations.

Recommendations

As mentioned earlier, while the NTSB has focused attention on the sterile cockpit rule, and the FAA, airlines, and piloting community have encouraged more compliance, there is no data establishing that these efforts have been effective in creating more compliance. On the contrary, for a problem that seems so manageable, crash investigations have continued to document that sterile cockpit violations still are occurring with alarming frequency. Moreover, there is every reason to assume that the cockpit voice recorders recovered in crash investigations reveal only a small portion of the violations that are occurring in the field. In other words, the pilots, their unions, the FAA, and the air carriers need to employ more effective tactics to address sterile cockpit violations, if they wish to fend off the accusation that current efforts are merely paying lip service to the problem.

The data strongly support the idea that, with pilots sealed behind the cockpit door and without the presence of a check airman in the cockpit, the industry's efforts have fallen short of deterring violations of the sterile cockpit rule. A major problem may be that some pilots, perhaps even a majority, simply do not believe, deep down, that small talk at the wrong time is dangerous. This should be studied further, but it is already clear that dissemination of

information about the danger alone has been tried and does not seem to be working.

After Pinnacle Airlines discovered its pilots operating improperly when they were not being monitored on Part 91 flights, it decided to review the flight data recorder after those flights for possible violations so the pilots would know their conduct in the cockpit was always being monitored. As of November 2006, 18 air carriers operating under Part 121 had similar programs in effect.⁵³

We recommend extending this program to random stealth audits of cockpit communications for compliance with the rules, regulations, guidelines, and procedures; and a system of progressive discipline (or at least training to proficiency) for proven violators. For example, fear of a call from the chief pilot may persuade pilots who otherwise would violate the rule to follow it instead. Moreover, digital technology and a commitment by airline management that is encouraged by the FAA and not resisted by the pilot unions could lead to an effective system of stealth auditing of cockpit communications that would be both feasible and inexpensive when compared to the safety value added.

In order for monitoring to yield deterrence, pilots must also know there will be consequences if they are caught violating rules. Random sampling would create the perception among crew members that their conduct was being monitored, and would likely lead to increased adherence to standard operating procedures without depending on convincing a diverse piloting community of the wisdom and validity of every rule. Thus, such oversight would enhance compliance both by catching violators before their conduct led to harm and, perhaps more importantly, more effectively deterring violations.

The bottom line is common sense tells us that pilots would be much less likely to be talking politics on the approach or talking about other pilots' jobs while taxiing if there was a chance they could be held accountable for these violations. The current situation of catching violations and violators only after a major accident or incident, if one pilot reports another, or in the presence of a check airman, is simply unacceptable. The captain of Corporate Airlines Flight 5966, who had a reputation among his co-workers of emphasizing fun in the cockpit, should have been caught and warned about his disregard for the sterile cockpit rule well before his violations led to the loss of 13 lives and 2 serious injuries. Even if not caught, his conduct may, at least have been discouraged through the effective deterrence of an inexpensive digital voice monitoring system device that would not even need to be crash

proof, because it would not be a substitute for cockpit voice recorders.

Another recommendation to help address the problem of pilots violating standard operating procedures is implementation of an image recording system in the cockpit. The NTSB has long advocated the implementation of a cockpit image recording system, first citing this recommendation in 1990⁵⁴ and adding it to the Most Wanted List in 2002.⁵⁵ A full discussion of the benefits and need for cockpit image recorders can be found in the article, *Cockpit Image Recorders: A Picture is Worth a Thousand Words*, by David E. Rapoport and Paul D. Richter.⁵⁶ However, it should be noted that in addition to providing critical and valuable information for NTSB accident investigations and resulting safety recommendations, cockpit imagery, if mandated, will reinforce the perception that the pilots' conduct is being monitored and will lead to increased compliance with standard operating procedures, including the sterile cockpit rule. We once again applaud the NTSB for placing this important issue on its Most Wanted List, and once again observe that it has been on that list without action by the FAA for too long.

David E. Rapoport is the founder of Rapoport Law Offices, P.C. He has a national practice that is limited to handling severe personal injury and wrongful death cases on behalf of victims. Many of Mr. Rapoport's cases have involved major air disasters, including service as lead trial attorney of the Plaintiffs' Steering Committee in the USAir Flight 1016 liability case, lead trial attorney in consolidated federal cases arising out of the crash of United Airlines Flight 232, and as a member of the Lead Counsel Committee in multi-district federal litigation arising out of the crash of American Eagle Flight 3379. He was also a member of the Plaintiffs' Steering Committees in cases arising out of the crashes of EgyptAir Flight 990, American Airlines Flight 1420, and Swissair Flight 111.

Joshua L. Weisberg is a trial lawyer whose practice is dedicated exclusively to representing victims and their families in personal injury and wrongful death cases. He has played a key role in many of his firm's high profile cases, including the wrongful death case of the co-pilot of American Airlines Flight 587 that crashed at Belle Harbor, New York in 2001, and the wrongful death case of a man killed in an air taxi crash near Beaver Island, Michigan, in 2001. A Magna Cum Laude graduate of the University of Illinois College of Law, Weisberg received the College of Law's Rickert Award for Excellence in Oral Advocacy. He also was named "Best Overall" in the school's Frederick Green Moot Court Competition, and was a regional champion and national finalist in the National Moot Court Competition.

Endnotes

¹ Patton, Janet and Vos, Sarah, The final minutes: Pilots were discussing jobs, children and dogs, Lexington Herald Leader (Jan. 18, 2007) (http://www.realcities.com/mlid/kentucky/news/special_packages/crash/previous_coverage/16486113.htm).

² Comair Flight 5191, CVR Factual Report (2006).

³ *Id.*

⁴ Wiegmann, D. and Shappell, S., *A Human Approach to Aviation Accident Analysis: The Human Factors Analysis and Classification System*, p. 11 (Ashgate Publishing Limited) (2003).

⁵ AC No: 120-51E (January 22, 2004).

⁶ NTSB Aircraft Accident Report AAR75-09, p.1 (May 23, 1975).

⁷ *Id.*

⁸ *Id.* at 18.

⁹ NTSB Safety Recommendations A-74-85 and 86, p. 2 (October 8, 1974).

¹⁰ *Id.*

¹¹ The rule's application to Part 121 flights is codified at 14 C.F.R. § 121.542, while its application to Part 135 operations is codified at 14 C.F.R. § 135.100. This article focuses on the rule as it pertains to Part 121 flights.

¹² NTSB Aircraft Accident Report AAR89-04, p.1, 5 (September 26, 1989).

¹³ *Id.* at 6.

¹⁴ *Id.* at 74-75.

¹⁵ NTSB Aircraft Accident Report AAR95-03, p.1 (April 4, 1995).

¹⁶ *Id.*

¹⁷ *Id.* at 105.

¹⁸ *Id.*, citing Endsly, M. R. (1995) 'Situation Awareness in Dynamic Human Decision Making: Theory.' In R. D. Gilson, D. I. Garland, and J. M. Koonce (Eds.) *Situational Awareness in Complex Systems*. Santa Monica, California. Human Factors and Ergonomics Society.

¹⁹ Additionally, in a brilliant cross examination of USAir's director of training, Plaintiffs' Steering Committee member James W. Orr first had the witness confirm his belief the flight crew had not violated the sterile cockpit rule, then made him admit that the cockpit voice recorder transcript conflicted with this opinion because it documented numerous violations of the rule. James W. Orr, a partner in the law firm of Bowers Orr, L.L.P., Columbia, South Carolina, passed away at sixty-one in March of 2007. Jim was dedicated to air safety and did outstanding work for his clients in several air disasters. He was an exemplary husband, father, grandfather, partner, and friend. Jim Orr was a close friend and collaborator of the lead author's and a strong believer in the importance of the sterile cockpit rule. This article is dedicated to the memory of Jim Orr, who probably would have been a co-author of this paper and made it a better one in different circumstances.

²⁰ NTSB Safety Recommendations A-96-71 through 73, p. 1 (August 15, 1996).

²¹ *Id.* at 4.

²² *Id.* at 6.

²³ NTSB Safety Recommendations A-06-7 through 11, p. 1 (February 7, 2006).

²⁴ *Id.* at 2-3.

²⁵ *Id.* at 4.

²⁶ *Id.* at 5-6.

²⁷ FAA, Safety Alert for Operators, 06004, p. 1 (April 28, 2006).

²⁸ *Id.*

²⁹ NTSB Safety Recommendations A-06-83 and 84, p. 1 (December 12, 2006).

³⁰ *Id.*

³¹ Irrelevant banter while driving or doing surgery, where non-pertinent conversation may be the norm, may well be distracting and increase the risk of catastrophic mistakes. During critical phases of almost anything, common sense dictates eliminating distracting chatter and small talk. Since good sense is not as common as it could be, the aviation community is in a position to lead other sectors by actively eliminating non-pertinent conversation during critical phases of flight. This could over time help move people toward eliminating non-pertinent conversations in other dangerous activities where momentary lapses in attention can mean the difference between life and death.

³² Sunwalt, Robert L., The Sterile Cockpit, ASRS Directline, Issue No: 4, June 1993.

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ AC No. 120-48, p.5 (1988).

³⁷ AC No. 120-74A, p.9 (2003).

³⁸ AC No. 120-71A, (2003); AC No: 120-51E (2004).

³⁹ *Id.* at p. 7.

⁴⁰ AC No. 120-51E, p. 5, 13 (2004).

⁴¹ FAA, Safety Alert for Operators, 06004, p. 2 (April 28, 2006).

⁴² NTSB Safety Recommendations A-07-1 through 11, p. 1 (January 23, 2007).

⁴³ *Id.*

⁴⁴ *Id.* at 6.

⁴⁵ *Id.* at 7.

⁴⁶ *Id.* at 10.

⁴⁷ *Id.* at 6.

⁴⁸ *Id.* at 10.

⁴⁹ *Id.* at 11.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.* at 10.

⁵⁴ NTSB Aircraft Accident Report AAR90-04, p.1 (1990).

⁵⁵ NTSB Most Wanted Transportation Safety Improvements, 2004-2005.

⁵⁶ ISSUES IN AVIATION LAW AND POLICY (CCH) ¶ 5211 (May 2005).

[The next page is 4001.]