

The Importance of 'Sterile Cockpit' Compliance

In 1981, the FAA enacted regulations to reduce the number of accidents by prohibiting nonessential crew activities during critical phases of flight. A recent review of anonymous reports suggests that noncompliance remains a problem.

"The pilots were discussing politics, used cars and their financial situations during the final stages of an instrument approach, seconds later the airplane crashed short of the runway killing most of the passengers aboard."
NTSB Accident Report

This occurrence is one of many accidents and incidents involving nonessential conversation or activities in the cockpit. The cockpit of an aircraft during taxi, approach or any other critical phase of flight is neither the time nor the place to be involved in nonflight-related activities.

In 1981, the FAA enacted FAR Part 121.542 for air carriers, "Flight Crewmember Duties," also known as the sterile cockpit rule. The regulation prohibits the crew from partaking in any nonessential duty or activity while the aircraft is in a "critical phase of flight." A "critical phase of flight" includes any ground operations, involving taxi, take-off and landing and all other flight operations conducted below 10,000 feet mean sea level (MSL), except cruise flight. Reasoning behind the 10,000 feet MSL rule is that most flight operations, in which the crew is the busiest, are conducted below this level.

Is the 10,000 feet MSL enough?

Most of the airports that AA operates into are within a few thousand feet of sea level. However, there are exceptions. Operations are conducted daily at Denver's International Airport which is at an elevation of 5351 feet. Much of the radar vectoring is done above 10,000 MSL and some of the

instrument approaches begin very near this level. Daily operations are also conducted at La Paz, Bolivia at an elevation of 13,313 feet. Does this mean that the sterile cockpit rules do not apply in these circumstances? At high elevation, airports 10,000 feet above ground level (AGL) may be a more appropriate boundary. Regardless of the situation the Captain should set standards for sterile cockpit compliance according to his best judgment.

The regulation never intended to prohibit functions that are necessary for flight safety. This regulation was not designed to eliminate all conversation in the cockpit. Actions dealing with crew call outs, accomplishing checklists, procedural discussions, voicing safety concerns and crew interaction are considered normal flight operations. Conversely, because they are not related to the safe operation of aircraft, regulations prohibit the following actions during the critical phase of flight:

- Nonsafety related radio calls such as ordering galley supplies
- Confirming passenger connections
- Announcements to the passengers concerning points of interest
- Engaging in nonessential conversations between the cabin and cockpit crew.

Sterile cockpit responsibility shared by the crew

The primary responsibility for maintaining sterile cockpit compliance lies in the hands of the Captain. Flight Crewmembers may not engage in, nor may any pilot in command permit, nor may any Flight Crewmember perform any activity that does not pertain to the safe operation of an aircraft. If any vio-

A "critical phase of flight" includes any ground operations, involving taxi, take-off and landing and all other flight operations conducted below 10,000 feet mean sea level (MSL), except cruise flight.

lations occur, the pilot in command must not permit them to continue. Operators can also contribute to the benefits of sterile cockpit procedures by requiring cockpit crews to only perform essential safety related duties during the critical phase of flight.

Noncompliance leads to accidents and serious incidents

Although the sterile cockpit has enhanced aviation safety, it is difficult to estimate the number of accidents and serious incidents that it has prevented. Where noncompliance has led to accidents and incidents, the unfortunate results are obvious. Each year the Aviation Safety Reporting System (ASRS) receives scores of incident reports that illustrate deviations from the sterile cockpit. Typical are remarks such as, "If we had adhered to the sterile cockpit this situation probably would not have occurred." According to ASRS, deviations in sterile cockpit procedures have led to occurrences such as runway transgressions, course and altitude deviations and near mid air collisions. The ASRS reviewed 63 incident reports involving sterile cockpit deviations, the following lists four of the most frequent violations:

- Extraneous conversations —
- As in the accident described previously the ASRS review noted that 35 of the 63 reports mentioned extraneous conversations when describing incidents.

The Importance of 'Sterile Cockpit' Compliance *continued* —

As explained in one report, "both the First Officer and I became distracted because of a conversation that was started before the level off. At 4,300 feet our altitude alert system went off...Our sterile cockpit procedures should have eliminated the problem if properly followed."

- **Distractions by Flight Attendants** — In fifteen of the 63 reports, incidents were mentioned when the Flight Attendants entered or called the cockpit during a critical phase of flight. One report described how the crew inadvertently encroached on an active runway while the Flight Attendant was delivering coffee, causing an aircraft on final to go around.

- **Public Address (PA) announcements** — Ten of the 63 reports involved the Captain making PA announcements during the critical phase of flight. One instance caused the pilot to over shoot an altitude by 500 feet.

- **Sightseeing** — "Nowhere does Webster's Dictionary define 'sightseeing' as an activity that is essential to the safe operation of aircraft," said the ASRS researcher who found three such reports in its review. Obviously while sightseeing, a considerable amount of the crew's attention is diverted outside the cockpit at something that it should not be.

Misinterpretations of sterile cockpit rules are possible

Although the sterile cockpit was implemented to increase safety by minimizing distractions during critical flight phases, there is evidence to suggest that safety can be impaired by misunderstandings:

- A required checklist may be accomplished. Misunderstandings can also prevent important safety information from reaching the cockpit.

- Flight Attendants who might be intimidated by the crew may not relay critical safety information for fear of being wrong and to avoid embarrassment from a possible reprimand. It is crucial that Flight Attendants understand that communication about safety issues is far more important than breaking the sterile cockpit rule.

| Situations That Warrant Sterile Cockpit Interruptions | Situations That Do Not Warrant Sterile Cockpit Interruptions |
|--|--|
| Fire burning or smoke in the cabin Medical emergency Fuel or other fluid leaks Unusual noise or vibration | Meal preferences Gate information Passenger accommodations Mismatched baggage |

In a 1988 report by the Department of Transportation, 72 percent of the pilots surveyed indicated that they had experienced problems because of a lack of information about the sterile cockpit. Eighty percent of the pilots and eighty-six percent of the Flight Attendants indicated that the cabin crews needed more specific guidance about when sterile cockpit interruptions were appropriate.

The following is a list of general guidelines as to when interruptions of the sterile cockpit may or may not be appropriate:

This list, along with appropriate regulatory requirements, provides a starting point for guidelines that can be tai-

lored to suit the needs of each situation.

Preflight briefings are important

In addition to specific guidelines, the Captain can play a major role in encouraging Flight Attendants to voice concerns to the cockpit crew about safety issues. By mentioning the sterile cockpit procedures in the *preflight* briefing much confusion can be eliminated.

If understood and implemented properly, the sterile cockpit has many advantages and works well. The accident and incident records send a clear message: aviation safety can be enhanced by adhering to sterile cockpit procedures.

It is crucial that flight attendants understand that communication about safety issues is far more important than breaking the sterile cockpit rule.
