



# National Transportation Safety Board

Washington, D.C. 20594  
Safety Recommendation

Fig # 2258

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Date: September 28, 1990

In reply refer to: A-90-124 through -132

Honorable James B. Busey  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

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On September 8, 1989, N283AU, a Boeing 737-200 operated as USAir flight 105 was a regularly scheduled revenue passenger flight conducted under 14 Code of Federal Regulations Part 121 from Pittsburgh, Pennsylvania (PIT), to Wichita, Kansas, with an en route stop in Kansas City, Missouri (MCI). Fifty-eight passengers, two flight crewmembers and four flight attendants were onboard. A Federal Aviation Administration inspector who was performing an en route inspection occupied the cockpit observer's seat. The flight from Pittsburgh to the Kansas City area was uneventful.<sup>1</sup>

The captain was the pilot flying and the first officer was performing the communications with air traffic control. USAir 105 was cleared to execute the localizer back course approach to runway 27 at 2129:41. At 2134:23, the local controller told USAir 105 "I can't tell for sure but it appears we have lost the lighting on the south side of the airport." The flightcrew later described seeing a bright flash about this time. Subsequent inspection revealed that the airplane struck and severed four electronic transmission cables, located about 75 feet above the ground, approximately 7,000 feet east of the runway 27 threshold. The flightcrew executed a missed approach and landed uneventfully in Salina, Kansas. None of the passengers or crew was injured, but the airplane sustained minor damage in the incident.

The Safety Board's investigation of the accident revealed several areas of concern that include: lack of appropriate warnings on approach charts; inadequate FAA vigilance over the air traffic control (ATC) system, as well as training and guidance to operations inspectors; lack of appropriate training in and understanding of the use of visual descent points (VDPs); inadequate procedures in the transmission of weather information between the ATC system and the National Weather Service (NWS); and the need to adjust current minimum safe altitude warning (MSAW) parameters.

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<sup>1</sup>For more detailed information, read Aircraft Incident Report--USAir, Inc. flight 105, Boeing 737-200, N283AU, Kansas City, Missouri, September 8, 1989 (NTSB/AAR-90/04).

### Approach Charts

The Safety Board believes that the flightcrew of USAir 105 misidentified lights on the ground for those associated with the runway while executing the approach to MCI's runway 27. The FAA has apparently recognized that misidentifications can occur near airports because on some approach charts it has alerted pilots to maintain vigilance to avoid confusing these lights with those associated with runways. This incident illustrates the need for placing such a warning on the approach charts for MCI's runway 27. Moreover, the Safety Board is concerned that approach charts to other runways with potentially confusing features may not display cautionary warnings.

Therefore, the Safety Board believes that the FAA should solicit reports from pilots about potentially confusing lights or other features near runways associated with instrument approach charts that do not display cautionary warnings on those features and require that the approach charts be revised to incorporate the needed warnings.

### FAA Oversight

The Safety Board believes that on the night of the incident the MCI controllers did not provide adequate air traffic control services in general and to USAir 105 in particular. Moreover, after the incident, many of these controllers did not appear to recognize the potential effect of their performance, which could have lead to a catastrophic accident. The Safety Board's investigations of previous accidents and incidents involving ATC deficiencies, as well as its investigations of ATC operational errors, have been critical of the FAA's safety oversight and quality assurance of the ATC system.

The Safety Board continues to lack confidence in the FAA's commitment to provide effective quality assurance and safety oversight of the ATC system. The evidence indicates that the FAA failed to take the necessary actions to address and correct the numerous operational, administrative and managerial deficiencies identified in the investigation of this incident. The fact remains that the FAA's Office of Safety Quality Assurance is understaffed and without an approved charter outlining its responsibilities.

Therefore, the Safety Board believes that the FAA should modify the functional statement of its Office of Safety Quality Assurance and provide sufficient resources to it to make it capable of providing total quality assurance and safety oversight of the ATC system.

The Safety Board believes that the performance of the FAA inspector in this incident calls into question the quality of en route inspections. The fact that en route inspections are conducted by inspectors without referral to instrument approach charts indicates that, at a minimum, the most critical aspects of flight are unexamined during such inspections. Further, the fact that the inspector on USAir 105 failed to address a premature descent that was contrary to an ATC clearance raises questions about the FAA's training of and guidance to its inspectors.

Consequently, the Safety Board believes that the FAA should require that inspectors have current instrument approach charts accessible during the conduct of en route inspections. In addition, the Safety Board believes that in view of the evidence on the quality of the performance of the inspector on USAir 105, the FAA should review its training, policies and procedures regarding en route flight inspections and revise them to increase the likelihood that inspectors will monitor crew performance and, as necessary, inform the crew of unsafe actions or violations of FARs.

#### Visual Descent Point

Neither the flight crewmember nor the FAA inspector on USAir 105 fully recognized the purpose and role of the VDP in executing a nonprecision approach. The fact that the flightcrew of USAir 105 descended well before the VDP and that these crewmembers could not recall receiving simulator training employing VDPs indicates that pilot training in the execution of nonprecision approaches should be improved.

Therefore, the Safety Board believes that the FAA should issue an Air Carriers Operations Bulletin directing principal operations inspectors to urge air carriers to assure that flightcrews are cognizant of the purpose of VDPs and to include approaches with VDPs in their simulator training.

#### Stabilized Approach Procedures

The DFDR and radar data showed that USAir 105 did not intercept the localizer until well inside the final approach fix. The data showed that the flightcrew would have had a full-scale localizer needle deflection at and inside the final approach fix. The Safety Board's examination of USAir's training and procedures indicated that the company had complied with relevant FARs. Nevertheless, the company lacked guidance to pilots on the need to maintain precise course guidance while executing nonprecision approaches. In fact, procedures did not direct pilots to automatically go around during nonprecision approaches if the flight navigation displays showed full localizer deflection during the approach. Had the flightcrew been given this guidance, perhaps they would have recognized the need to abandon the approach before they joined the localizer so close to the runway and the incident could have been avoided. The company provided adequate guidance to pilots executing precision approaches and directed them to maintain precise guidance on the localizer/glide slope and to execute an immediate missed approach if they encounter localizer or glide slope deviation outside of specified safety limits.

The Safety Board believes that this incident illustrates the need for USAir to revise further its operating procedures and training curriculum to emphasize the importance of maintaining precise course control in the execution of nonprecision, as well as precision approaches. Further, the Safety Board believes that other carriers may also lack such guidance to their pilots. Therefore, the Safety Board believes that the FAA should direct its principal operations inspectors to determine whether airlines they surveil require pilots to execute a missed approach when they encounter full-scale localizer deflection inside the final approach fix on a nonprecision approach and to require airlines that do not employ such procedures or provide such guidance to do so.

### Weather Transmissions

In this incident, conversations between NWS personnel and FAA ATC personnel in MCI took place over an unrecorded telephone line. Subsequently, the exact nature of the transmission of the weather information, such as the time of transmission and whether the information was properly sent and received, were in dispute. The Safety Board believes that the acknowledgement of the transmission of weather information is critical to assuring that such data is received and acted upon.

Therefore, the Safety Board believes that the FAA should require acknowledgement of the transmission and receipt of all weather messages exchanged between an FAA ATC facility and the NWS at airports where weather information is regularly exchanged between the two entities, to include the time of receipt and the identity of the person receiving the information.

### Minimum Safe Altitude Warning (MSAW)

Because USAir 105's premature descent, which took place more than a mile from the runway threshold, was inside the inhibit area designed to minimize the number of false alerts of low aircraft that are maintaining a proper descent, the MSAW alert did not activate. The Safety Board believes that MSAW parameters can be adjusted to provide for increased protection in areas where MSAW warnings are currently inhibited.

Therefore, the Safety Board urges the FAA to provide site adaptation guidance to encourage modification of MSAW parameters, as appropriate, to increase the MSAW protection areas and to minimize the extent of inhibit areas.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Solicit reports from pilots about potentially confusing lights or other features near runways associated with instrument approach charts that do not display cautionary warnings on those features and require that the approach charts be revised to incorporate the needed warnings. (Class II, Priority Action) (A-90-124)

Modify the functional statement of the Federal Aviation Administration Office of Safety Quality Assurance and provide sufficient resources to it to make it capable of providing effective quality assurance and safety oversight of the air traffic control system (Class II, Priority Action) (A-90-125)

Require that inspectors have current instrument approach charts accessible to them during the conduct of en route inspections. (Class II, Priority Action) (A-90-126)

Review the training, policies and procedures regarding en route flight inspections and revise them to increase the likelihood that FAA inspectors will monitor adequately crew performance and inform the crew, as necessary, when violations of Federal Aviation Regulations or unsafe practices have occurred. (Class II, Priority Action) (A-90-127)

Incorporate requirements for Visual Descent Points in Federal Aviation Regulations Part 135, Air Taxi Operators and Commercial Operators, similar to FAR Part 121.651(c)(4). (Class II, Priority Action) (A-90-128)

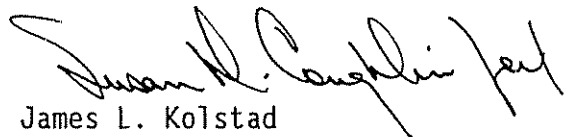
Issue an Air Carriers Operations Bulletin directing principal operations inspectors to urge air carriers to ensure that flightcrews are cognizant of the purpose of Visual Descent Points and to include approaches with Visual Descent Points in their simulator training. (Class II, Priority Action) (A-90-129)

Provide site adaptation guidance to encourage modification of Minimum Safe Altitude Warning parameters, as appropriate, to minimize the extent of inhibit areas. (Class II, Priority Action) (A-90-130)

Direct principal operations inspectors to verify that the airlines they surveil have clearly established stabilized approach and missed approach procedures for nonprecision approaches, such as full-scale deflection of the localizer needle when the airplane is inside the final approach fix. (Class II, Priority Action) (A-90-131)

Require the acknowledgement of the transmission and receipt of all weather messages exchanged between an FAA air traffic control facility and the National Weather Service at airports where weather information is regularly exchanged between the two entities, to include the time of receipt and the identity of the person receiving the information. Further, the exchange of such weather messages should occur over recorded telephone lines or recorded electronic transmission means, with the recordings retained for a reasonable amount of time. (Class II, Priority Action) (A-90-132)

KOLSTAD, Chairman, COUGHLIN, Vice Chairman, LAUBER, BURNETT, and HART, Members, concurred in these recommendations.



By: James L. Kolstad  
Chairman