

Log 1484 AI-1

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: AUG 20 1982

Forwarded to:

Honorable J. Lynn Helms  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-82-94

On March 27, 1980, a Beechcraft BE-200 Super King Air, crashed and burned in a field near Parker, Colorado, killing the two pilots and eight passengers on board. <sup>1/</sup> Medical examinations of the pilots and passengers revealed that the copilot and four passengers died from blunt trauma sustained in the crash. However, the pilot and the four other passengers died from smoke inhalation, carbon monoxide toxicity, or injuries associated with the effects of extensive burns.

The airplane crashed about 1452. The first witnesses found the wreckage about 1515 and observed that the airplane appeared to be intact. Smoke was coming from the front of the airplane, but no flames were visible. They left the site to get help and returned with two additional persons about 1530. At this time, the witnesses saw flames coming from the right front of the airplane. Smoke on the left side of the airplane was so dense that the witnesses were not able to approach that side, so they approached the right side of the airplane, which was free of smoke. They saw that the inside of the airplane was filled with thick black smoke. The witnesses could not find an exit on the right side of the airplane, so one of them broke out the right rear window to try and see if there were any signs of life inside. No movement was observed and no sounds were heard. Subsequently, after hearing a loud "popping" sound, all of the witnesses moved a safe distance away from the wreckage. A deputy sheriff arrived at the scene about 1 hour 23 minutes after the crash. By this time, the fire, which had started in the cockpit area, had spread and engulfed the airplane in flames and heavy smoke. No further rescue attempts could be made.

Emergency Exit Requirements

The Beechcraft King Air BE-200 was type certificated under 14 CFR 23; 14 CFR 23.807 requires that this airplane have an emergency exit in the form of a movable window, panel, or external door, located on the opposite side of the cabin from the passenger entrance door. The King Air complies with this requirement. Special Federal Aviation Regulation (SFAR) 23, also in 14 CFR 23, pertains to reciprocating or turboprop multiengine small airplanes, certificated to carry more than 10 occupants and intended

<sup>1/</sup> For more information, see Aircraft Accident Report: Lufkin Industries, Inc. Beechcraft Super King Air BE-200, N456L, near Parker, Colorado, March 27, 1980, (NTSB-AAR-82-9).

for use under the rules of 14 CFR 135. Appendix A of SFAR 23 requires that the external doors required by FAR 23.807 be openable from the inside and the outside. The accident aircraft, certificated to carry up to 15 occupants, also met this additional requirement. However, there are no requirements under 14 CFR 23, (including SFAR 23), 14 CFR 91, or 14 CFR 135, for the doors or exits to be marked on the outside of the airplane as to either their location or means of operation.

The requirements of 14 CFR 25 deal with airworthiness standards for transport category airplanes. In general, this part applies to those airplanes over 12,500 pounds. Specifically, 14 CFR 25.807 prescribes the number and type of passenger emergency exits that must be installed, and Section 25.809 prescribes their arrangement. The latter regulation also states that all emergency exits must be openable from the inside and from the outside of the airplane. (As noted earlier, 14 CFR 23 does not require that external doors be openable from the outside.) In addition, 14 CFR 25.811(f) requires that the emergency exits be openable from the outside, and that the means of operating these exits must be marked on the outside of the fuselage. These markings include a 2-inch band of contrasting color with a prescribed reflectance, outlining each passenger emergency exit. This conspicuity requirement for transport category airplane emergency exits and their means of opening from the outside of the fuselage has been in effect at least since 1953.

In addition to the basic airworthiness standards set forth in 14 CFR 23 and 25, there are requirements specified in the operating rules of 14 CFR 91, 14 CFR 121, 14 CFR 125, and 14 CFR 135. Of these, only 14 CFR 121 and 14 CFR 125, which became effective in 1981, require that emergency exits and their means of operation be marked on the outside of the fuselage.

#### Past Safety Recommendations

The investigation of the February 1978 crash of a Beechcraft Model 99 at Richland, Washington, brought to the Safety Board's attention problems that could adversely affect passenger evacuation and hinder the effectiveness of crash/fire/rescue personnel.

The Beech 99, like the King Air BE-200, is equipped with emergency exits that are openable from inside and outside. The accident airplane was operating under the rules of 14 CFR 135 as a commuter air carrier, and was not required to have the location or means of operation of emergency exits marked on the fuselage. At the time of the Beech 99 accident, all 15 passenger and 2 crew seats were occupied, and the 17 occupants died at impact. However, had there been survivors, it is likely that they would have perished in the postcrash fire because rescuers would not have been able to identify and operate the emergency exits from the outside in a timely manner. As a result of the Richland accident, the Safety Board recommended 2/ amending 14 CFR 135 to require upgrading of exit conspicuity and operability standards to the level of those in 14 CFR 25 and 121.

On June 12, 1980, a 22-place Swearingen Metro SA-226TC crashed in a thunderstorm, near Valley, Nebraska, killing 13 of the 15 occupants on board. The two survivors were incapacitated and unable to initiate an evacuation. Rescue personnel had to cut into the fuselage in order to extricate the victims.

Although this airplane was certificated to carry up to 22 occupants, its takeoff weight (12,500 lbs.) placed it in the normal category, allowing it to be certificated under 14 CFR 23, and SFAR 23. It was being operated under 14 CFR 135 rules. The regulations

2/ Safety Recommendations No. A-79-14 and A-79-15, May 1, 1979.

required this airplane to have emergency exits that were either movable windows, panels, or external doors. In this case, the emergency exits consisted of three overwing windows. Part 23 contains no requirements that these windows be openable from the outside and no external opening means were provided. The only external exit opening requirements in SFAR 23 and 14 CFR 135, are for external doors. Therefore, not only are there no requirements to mark the location of the exits on the fuselage of this 22-occupant airplane, there are also no requirements that the emergency exits be openable from the outside--rendering them totally useless to rescuers.

As a result of the Valley accident, the Safety Board recommended amending 14 CFR 23.807 (which is incorporated by reference into SFAR 23) to require that all emergency exits, regardless of their configuration, to be openable from the outside. 3/

Finally, prompted by concern over similar problems in occupant survival and rescue in small single-engine airplanes, the Safety Board conducted a review of Piper Cherokee accident records for the years 1975 through 1978. The review disclosed six Cherokee accidents in which the lack of emergency exits, or the inability of victims or rescuers to operate the only door, contributed to or could have contributed to the death or serious injury of the airplane occupants. Discussions between the Safety Board staff and Piper engineers revealed that an existing window in this airplane could readily be converted to an emergency exit without structural modifications to the airframe. This is also true for other aircraft models.

As a result of these safety deficiencies, the Safety Board recommended 4/ amending the airworthiness regulations of 14 CFR 23 to require emergency exits in single-engine airplanes and to require that they be openable from inside and outside. It also recommended that the operating regulations of 14 CFR 91, as well as the applicable regulations of 14 CFR 23, be amended to require that all doors and emergency exits and their means of operation be conspicuously marked on the outside of the fuselage.

As of this date, the FAA has taken no conclusive action on these recommendations. The Safety Board believes that the absence of emergency exits or the inability of rescuers to locate or externally operate existing exits greatly reduces the potential for survival of accident victims.

In 1971, the FAA adopted Amendment 23-10 to 14 CFR 23. The purpose of the amendment was to limit the applicability of 14 CFR 23 to small airplanes having a seating capacity of 9 passengers or less. In justifying the need for the amendments, the FAA stated that it "... considers that continued applicability of Part 23 to small airplanes designed to carry 10 or more passengers is no longer in the interest of safety. Future generations of these small airplanes should adhere to the level of safety afforded by the requirements of Part 25 irrespective of whether operations are conducted under Part 135 or Part 91." The Safety Board agrees fully with the intent of this statement but strongly urges the FAA to take immediate action to bring the standards for emergency exits, and their operability and conspicuity, to an acceptable level of safety.

Therefore, the National Transportation Safety Board reiterates Safety Recommendation A-79-15, made to the Federal Aviation Administration on May 1, 1979:

3/ National Transportation Safety Board Recommendation No. A-80-137, January 5, 1981.

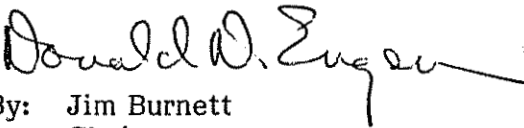
4/ National Transportation Safety Board Recommendation No. A-81-27 and A-81-28, March 20, 1981.

Amend 14 CFR 135 Appendix A (paragraph 32) by incorporating the general provisions of 14 CFR 25.811(f)(1),(2),(3) with regard to exit conspicuity and operability.

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

Issue an Airworthiness Directive directing all operators of airplanes equipped with emergency exits openable from the outside to mark the exits and their means of operation on the airplane fuselage in the manner prescribed by 14 CFR 25.811(f)(1),(2), and (3), irrespective of the rules under which the aircraft are being operated. (Class II, Priority Action) (A-82-94)

BURNETT, Chairman, McADAMS, BURSLEY, and ENGEN, Members, concurred in this recommendation. GOLDMAN, Vice Chairman, did not participate.

  
By: Jim Burnett  
Chairman