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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: December 19, 1984

Forwarded to:

Honorable Caspar W. Weinberger
Secretary of Defense
Washington, D. C. 20301-1000

SAFETY RECOMMENDATION(S)

A-84-134

The National Transportation Safety Board recently has conducted inquiries into two incidents involving Air Force airplanes transporting the Vice President and his party which have come within close proximity to another airplane. The first of these occurred on September 30, 1984, at about 1800 Eastern daylight time, when Air Force 2 was climbing to cruise altitude near Akron, Ohio. The airplane passed a general aviation airplane at less than the prescribed air traffic control (ATC) vertical or lateral separation. Both airplanes were in instrument meteorological conditions (IMC), and the pilots were responding to ATC direction. The precise circumstances leading to the ATC operational error are under investigation.

The second of these incidents occurred on October 18, 1984, when Air Force 2 was approaching Boeing Field near Seattle, Washington, at about 1445 Pacific daylight time. In this case, the airplane was in visual meteorological conditions (VMC) when the pilots observed a general aviation airplane passing ahead from left to right. An evasive maneuver was required by Air Force 2 to avoid a collision. The airplanes were not in positive control airspace, and the general aviation airplane was not under positive control.

In both of these incidents, the Safety Board examined the flight recorders which were on the Air Force C-137B airplanes involved. It found that these airplanes, as well as other C-137B/C (military version of the Boeing 707-153/323) and C-9 aircraft (military version of Douglas DC-9-30) operated by the military departments, are equipped with metal foil-type flight data recorders (FDR) which are obsolete and only meet the minimum Federal requirements for the older airplanes in the civil transport air carrier fleet. The data recorded by these units are

limited to five basic parameters which have proven to be only marginally adequate for incident and accident investigation purposes. Further, the metal foil-type FDRs are complex mechanically and are difficult to maintain for proper operation and to calibrate. 1/

The foregoing limitations have been recognized and have resulted in more stringent FDR requirements having been adopted for the newer airplanes in the civil transport air carrier fleet. Modern recorders make use of digital data formats on a magnetic tape recording medium and record many more parameters than the metal foil-type recorders. These additional parameters are essential to the effective reconstruction of incident or accident circumstances. Also, these units are far more accurate and require less maintenance than the metal foil-type. The Safety Board has encouraged the Federal Aviation Administration repeatedly to amend Federal regulations to require the digital, enhanced-parameter, FDRs on all of the civil air carrier fleet. Many foreign governments, in fact, have such requirements in effect already.

The Safety Board noted also that the cockpit voice recorders (CVR) aboard the Air Force C-137 and C-9 airplanes generally are old. While the one the Board checked (from the second incident) functioned satisfactorily, the Board suggests that the CVRs on all these airplanes should be checked frequently for proper operation and maintained regularly.

The Safety Board is concerned that the limitations of the flight recorders aboard the C-137 and C-9 passenger-carrying airplanes and other passenger-carrying aircraft could limit the ability of government (military or civil) investigators to determine the causes of accidents in which the aircraft might be involved. The Safety Board notes that the Air Force has had sophisticated flight recorders installed on all C-5A airplanes from their introduction, and has initiated a program to install modern technology flight recorders (cockpit voice recorders and digital, enhanced parameter, flight data recorders) in all C-5B airplanes, in over 700 of its C-130 airplanes, in 271 of its C-141 airplanes, and in 35 of its Airborne Warning and Control System (AWACS) E3A airplanes. Given the extent of the retrofit effort and the fact that many of these airplanes are used to transport cargo, the Safety Board believes there is a compelling case for upgrading the flight recorders in those aircraft (both fixed-wing and helicopter) operated by the military departments which are used to transport passengers, including prominent government officials.

1/ The Safety Board found that the FDR in the incident of September 30, 1984, was not recording data because the foil medium had been expended prior to the incident flight. The FDR in the incident of October 18, 1984, was operating properly, but the heading trace was 180 degrees out of phase. The Board has been advised that steps have been taken to avert similar problems in the future.

Therefore, the National Transportation Safety Board recommends that the Department of Defense:

Equip all current and newly acquired fixed-wing and rotary-wing aircraft operated by the military departments, which are used primarily to transport passengers, with state-of-the-art cockpit voice recorders and digital flight data recorders that record sufficient parameters for effective accident investigation, and place these recorders in the aircraft for maximum survival potential. (Class II, Priority Action) (A-84-134)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in this recommendation.

Patricia A. Goldman

By: Jim Burnett
Chairman