

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: April 13, 1978

Forwarded to:

Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D. C. 20591

SAFETY RECOMMENDATION(S)

A-78-21 and 22

During its investigation of the crash of a United Airlines cargoliner near Kaysville, Utah, on December 18, 1977, the National Transportation Safety Board found that the cockpit voice recorder (CVR) had been inoperative during the entire flight. As a result, valuable accident-related information was lost. Further investigation revealed that the CVR unit, a Sundstrand Data Control, Inc., model V-557, had been inoperative for several days before the accident. Flightcrews are required to perform a preflight functional check; however, we believe that current preflight testing procedures do not insure satisfactory operation of the CVR unit.

For example, United Airlines' flightcrews normally report about 50 to 60 CVR malfunctions per month. During the 30 days before this accident, United received about 89 reports of defective units. However, during the 45 days following the accident after a company telemeter outlining revised testing procedures had been sent to all flight stations, about 216 unsatisfactory units were found by United personnel. In addition to indicating that United's preflight testing procedures were not adequate, United Airlines' CVR service experience may indicate that a reliability problem exists for other air carriers who use similar units. The manufacturer of the accident airplane's CVR tested the unit using United's flight check procedure; the test results indicated the crew would have had an indication of satisfactory equipment operation after testing. Discussions following the tests disclosed that the problem may not be limited to United Airlines procedures.

Currently, the unit is checked for reliable operation by depressing a test button to note that a monitor needle deflects to the center of the scale and by inserting a headset plug into the unit jack to monitor cockpit area microphone audio test tones. However, the cockpit area microphone, which transfers audible cockpit sounds to a 30-minute loop tape, should also be tested by the flight crewmember speaking during the

test. The voice playback will assure him that the recording is not distorted. The cockpit preparation procedures of most air carriers require only that a flight officer push the test button momentarily and observe the needle's dual deflection on the monitor meter. The air carrier's manuals generally do not state that the headset shall be used. Therefore, normal operation of the cockpit area microphone is not verified.

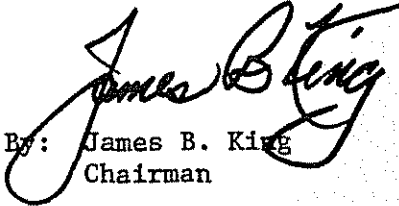
In the CVR unit on the United airplane, the loop tape was found entangled around the capstan of the recorder and could not be transcribed. The Safety Board believes that if the unit had been tested with the headset procedure, the malfunction of the unit would have been detected and an operable unit would have been installed before the accident. The Safety Board's concern with inoperative CVR's was reinforced recently as a result of its investigation of a Continental Air Lines, Inc., DC-10 rejected takeoff accident at Los Angeles International Airport. Preliminary information indicates the CVR was inoperative before and during the accident sequence.

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

Review the adequacy of current cockpit voice recorder preflight testing procedures to assure satisfactory system operation. (Class II - Priority Action)
(A-78-21)

Review the reliability of cockpit voice recorder units to assure that the mean time between failure is not excessive. (Class II - Priority Action)
(A-78-22)

KING, Chairman, McADAMS, and HOGUE, Members, concurred in the above recommendation. BAILEY, Vice Chairman, and DRIVER, Member, did not participate.


By: James B. King
Chairman