

because wet ditching drills had not been a part of their training curriculum.

16. Additional lives could possibly have been saved if crew leadership had been exhibited within the aircraft to the degree such leadership was shown while the survivors were awaiting rescue.
17. The loss of all liferafts on board the aircraft probably affected the survival of several passengers. If the evacuation slide had not been deployed and used as a rallying point, additional lives might have been lost because of dispersion of the survivors.
18. If a slide-raft combination had been installed in this aircraft, at least one raft might have been available without the necessity to deal with the cumbersome and time-consuming method of launching and boarding the raft. The slide-raft combination offers a measure of automation which should facilitate the tasks of the cabin attendants.
19. Lifevests were found to be restrictive around the neck and gave the passengers a low level of confidence regarding retention. In addition to the difficulties in donning the vests, the passengers had considerable problems finding inflation and adjustment controls.

## RECOMMENDATIONS

Several recommendations resulting from the investigation of the ditching of ONA Flight 980 have already been made to the Federal Aviation Administration. These recommendations and the FAA's responses were included in the Safety Board's Accident report released on June 15, 1971. A more recent status report concerning these recommendations was provided by the FAA in a letter dated June 29, 1971, a copy of which is included in this report as Appendix 3.

A number of new recommendations are made as a result of this special study. The first recom-

mendation pertains to cabin galleys. The Safety Board has been monitoring FAA's efforts to solve the problem of security of galley parts under crash conditions. Following the ONA accident, the FAA initiated a project to survey and analyze the extent and nature of the problem. It is the Board's understanding that as a result of this project, the FAA is planning to issue an NPRM to modify FAR Part 25 to require a fail-safe primary locking system or a secondary locking system for subunits of the galley structure. However, such a regulation, under Part 25, would not apply retroactively to aircraft already certificated by the FAA.

Recommendation one below reflects the Board's belief that the galley unit security problem should be corrected on currently certificated aircraft as soon as possible.

Recommendations two, three, and four are repetitions of recommendations previously made in the Board's accident report. This has been done to emphasize the Board's continued concern in these areas of safety.

As a result of the conclusions reached in this study, the Safety Board recommends that the Federal Aviation Administration:

- 63 1. Expand and accelerate its investigation of the failure mode of galley drawers, bins, ovens, etc., with a view towards elimination of such failures in current aircraft, as well as in future aircraft.
- 64 2. Reexamine the applicable Technical Standard Order governing the design and manufacture of lifevests with a view towards development of more comfortable, standardized, and less complicated lifevests for use in air carrier aircraft.
- 65 3. Expedite the development of the slide-raft combination and require installation of this device on all U. S. air carrier aircraft at an early date.
- 66 4. At its earliest opportunity, act upon a recommendation made previously by the Board regarding the metal-to-fabric seatbelts, to eliminate their use in aircraft of U. S. registry in favor of the

metal-to-metal type of seatbelts with a standardized actuating device.

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5. Amend FAR Part 129, "Operations of Foreign Air Carriers," to include the safety provisions of Subpart T of Part 121 governing the briefing of passengers, or include these provisions in the operations specifications issued to foreign air carriers by the Administrator; and require that approved wording for such briefings be included in the appropriate flight/operations manuals of the applicable crewmembers.
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6. Collaborate with the Air Transport Association in the development of more effective methods for conveying safety information to passengers. Research should be conducted in the application of communication techniques, behavioral sciences, and optimum learning situations. The recent advances in audio-visual techniques should also be explored.
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7. The FAA establish requirements for intercarrier crew compositions to assure that adequate training and standardization of emergency procedures have been accomplished in all facets of the operation.

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8. The FAA expedite its reevaluation of FAR Part 25.561 regarding design strength requirements for aircraft seats and other cabin equipment. The Board regrets that the FAA did not incorporate the increased strength requirements proposed in NPRM 69-33 into the Federal Aviation Regulations. The Board is of the opinion that new materials and design techniques in the aerospace industry, combined with the known tolerance limits of the human body to decelerative forces and the recurring failure of furnishings in aircraft accidents justifies an increase in these strength values.
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9. Require periodic crew training in evacuation and wet ditching drills.
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10. The Air Transport Association collaborate with foreign carriers, through the International Air Transport Association, in the standardization of methods for conveying safety information to passengers.
- 73
11. All air carriers make a critical review of their crew training practices and materials with a view toward expanding their training in the areas of crash survival and crew leadership and ensuring adequate retention of such knowledge.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

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April 5, 1972