

## 4. RECOMMENDATIONS

As a result of its investigation of this accident, the National Transportation Safety Board makes the following recommendations to the Federal Aviation Administration:

Modify Air Traffic Control procedures at the Los Angeles International Airport to:

- a.) segregate arrivals and departures to specific runways;
- b.) provide redundancies as intended in the National Operational Position Standards in the control tower. (Class II, Priority Action) (A-91-104)

Undertake a thorough risk-based evaluation of air traffic control procedures at the Los Angeles International Airport, evaluate whether changes are required, and implement necessary changes. The evaluation should consider at least the following issues:

- a.) runway intersection takeoffs;
- b.) position-and-hold clearances;
- c.) displaced runway thresholds;
- d.) hazards associated with runway crossing traffic;
- e.) local assist controller;
- f.) Airport Surface Detection Equipment use and maintenance.

(Class II, Priority Action) (A-91-105)

Include in the Office of Safety Quality Assurance the authority and resources to: (1) independently evaluate air traffic control facility compliance with FAA directives and; (2) audit facility evaluations performed by the Office of Air Traffic System Effectiveness to determine that noted deficiencies are corrected. (Class II, Priority Action) (A-91-106)

Retain the National Operational Position Standards as a separate, independent order and:

- a.) direct the FAA's Human Factors and Air Traffic Service staffs to perform a combined review of the order to determine the adequacy of redundancies and incorporate any resultant recommendations into the National Order;

b.) expedite the development of Chapters 5 through 10 of the National Order. (Class II, Priority Action) (A-91-107)

Provide Air Traffic Control Supervisors with formal training to improve their understanding of the intent, objectives and administration of the Technical Appraisal Program. (Class II, Priority Action) (A-91-108)

Require that interim evaluations of controller performance, such as those of the Technical Appraisal Program, be retained for 2 years and utilized in conjunction with other performance appraisals to track the performance and training needs of air traffic controllers. (Class II, Priority Action) (A-91-109)

Conduct a one-time examination of the airport lighting at all U.S. tower-controlled airports to eliminate or reduce restrictions to visibility from the control tower to the runways and other traffic movement areas. (Class II, Priority Action) (A-91-110)

Redefine the airplane certification coverage compliance standards for anticollision light installations to ensure that the anticollision light(s) of an aircraft in position on a runway are clearly visible to the pilot of another aircraft preparing to land or take off on that runway. (Class II, Priority Action) (A-91-111)

Evaluate and implement, as appropriate, suitable means for enhancing the conspicuity of aircraft on airport surfaces during night or periods of reduced visibility. Include in this effort, measures such as the displacement of an aircraft away from the runway centerline, where applicable, and the use of conspicuity enhancements, such as high-intensity strobe lighting and logo lighting by aircraft on active runways, and encourage operators of airplanes certificated prior to September 1, 1977, to upgrade their airplanes to the present higher intensity standards for anticollision light installations. (Class II, Priority Action) (A-91-112)

Direct the general aviation community and the airlines to take steps to ensure that pilot training programs, including cockpit resource management training and flight operations procedures, place sufficient emphasis on the need for pilots to maintain vigilance in monitoring air traffic control radio communication frequencies for potential traffic conflicts with their aircraft, especially when on active runways and/or when conducting a final approach to a landing. (Class II, Priority Action) (A-91-113)

Incorporate into the Airman's Information Manual language that will alert pilots to the need for vigilance in monitoring air traffic frequencies for traffic conflict situations which may affect the safety of their flight. (Class II, Priority Action) (A-91-114)

Develop for inclusion in the Airman's Information Manual and the Air Traffic Control Handbook, (7110.65F) specific phraseology to be used by pilots when requesting an intersection departure and specific phraseology to be used by controllers when issuing a position-and-hold clearance for an intersection departure. (Class II, Priority Action) (A-91-115)

Prohibit the use, after a specified date, of cabin materials in all transport category airplanes that do not comply with the improved fire safety standards contained in 14 CFR 25.853. (Class II, Priority Action) (A-91-116)

Direct the Emergency Evacuation Subcommittee of the Aviation Rulemaking Advisory Committee to examine flight attendant emergency procedures regarding the "2nd choice" exit assignments to ensure that such assignments provide for use of the nearest appropriate exit point. (Class II, Priority Action) (A-91-117)

Issue an Air Carrier Operations Bulletin directing Principal Operations Inspectors to emphasize that during a crash sequence flight attendants must remain properly restrained and seated in their crew seats until the airplane has come to a complete stop. (Class II, Priority Action) (A-91-118)

Establish a comprehensive educational program to alert pilots to the potential adverse effects on flightcrew performance that may arise from the misuse of prescribed and over-the-counter medication. (Class II, Priority Action) (A-91-119)

Conduct a directed safety investigation of the Sunstrand Model AV-557 CVR to determine the necessary modifications to ensure that the switching mechanism in the unit is able to withstand recording tape anomalies and variations in tape opacity that can be expected to appear during the normal service life of the tape. (Class II, Priority Action) (A-91-120)

Disseminate information regarding the circumstances of this accident and the findings of the Safety Board's investigation to the pilot community through operations bulletins and safety seminars, such as the "Wings Pilot Proficiency Program." (Class II, Priority Action) (A-91-121)

Also as a result of this accident, the National Transportation Safety Board reiterates the following recommendations to the Federal Aviation Administration:

A-89-124

Require 14 CFR Part 121 operators to develop and use Cockpit Resource Management programs in their training methodology by a specified date. (Class II, Priority Action)

A-90-135

Require that scheduled 14 CFR Part 135 operators develop and use Cockpit Resource Management programs in their training methodology by a specified date. (Class II, Priority Action)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

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