

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: June 2, 1977

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-77-34 and 35

The National Transportation Safety Board is currently investigating an accident which involved a Japan Air Lines Company, Douglas DC8-62F (JA 8054) at the Anchorage International Airport, Anchorage, Alaska, on January 13, 1977. The aircraft was a charter flight, transporting a bulk cargo of cattle. Immediately after takeoff, witnesses saw the aircraft reach a maximum altitude of about 100 feet before it yawed and descended to the ground. Another accident, in which the aircraft was carrying bulk cattle, involved a Convair 880 (N5865), operated by Air Trine Corporation, at the Miami International Airport, Miami, Florida, on December 16, 1976. In that accident, the aircraft failed to lift off the ground during the takeoff run. Postaccident investigation disclosed that the pitch trim was not within the takeoff range and that the aircraft gross weight was calculated incorrectly. Both of these accidents are still being investigated.

Our investigation of these accidents disclosed evidence of a potential safety hazard involving the transportation of live cattle on cargo airplanes. On these flights, the cattle were placed into pens which divided the full load into small groups so that their movement was restricted in any horizontal direction. The cattle were not positively restrained, however, and were thus able to move within the limits of the pens; the space for movement depended on the number of cattle in each pen. There was no vertical restraint. During the investigation of the Anchorage accident, we obtained information regarding one incident in which the cattle broke loose from the pens and the resultant weight transfer caused the airplane to prematurely rotate during takeoff. Although the evidence gathered to date does not indicate this to be a causal factor in either of the accidents being investigated by the Board, we are concerned that the unrestrained cattle's movement, or even

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the adverse effect of the normally limited cattle movement on the stability and control characteristics of the airplane, together with the physiological effects on a flightcrew subjected to constant oscillatory motions, could cause a catastrophic accident.

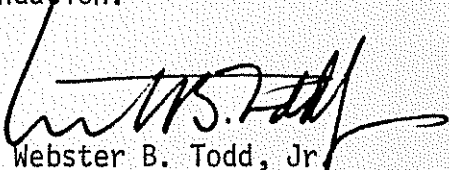
Further investigation of the situation revealed that two major airframe manufacturers had applied to the FAA for certification approval for the design of a livestock restraining system for installation in their aircraft. One FAA region disapproved the certification request because the design did not provide adequate restraint. However, the same basic design was approved within another FAA region by a manufacturer's designated engineering representative, who, lacking specific standards, used different criteria for evaluation. The cattle pens were manufactured as approved and leased to several air carriers including Japan Air Lines.

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

Issue an Advisory Circular to establish criteria for the design, installation, and use of livestock restraining systems and to insure that carriage of livestock will not adversely affect the operation of the aircraft or the function of its crewmembers. (Class II--Priority Followup.) (A-77-34)

Conduct an engineering analysis to determine the adequacy of livestock restraining systems which are currently approved for use. The analysis should determine the load distribution and maximum amount of load shift that can be permitted without causing an intolerable shift of the airplane's center of gravity and also should determine that the permissible limits will not adversely affect the airplane's stability and control characteristics or introduce physiological factors which could affect crew performance. (Class II--Priority Followup.) (A-77-35)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS, HOGUE, and HALEY, Members, concurred in the above recommendation.


By: Webster B. Todd, Jr.
Chairman