Mr. Frank Hilldrup
Major Investigations Division
National Transportation Safety Board
AS-10, Room 5322
490 L'Enfant Plaza East, S.W.
Washington, D.C. 20594-2000

Subject: ALPA Submission on the Accident Involving Emery Flight 017
Reference: Emery Airlines Flight 017, DC8-71F, N8079U, February 16, 2000 near Rancho Cordova, California (NTSB Major Investigation DCA00MA026)

Dear Mr. Hilldrup:

In accordance with the Board's rules, the Air Line Pilots Association International (ALPA), which represents 66,000 pilots at 43 carriers in the United States and Canada, submits the following comments concerning the above referenced accident.

The three crewmembers on board were fatally injured, and the aircraft was destroyed. This accident resulted in relatively limited fatalities and damage, but the outcome could have been significantly worse, as illustrated by other cargo carrier accidents such as the El-Al B-747 near Amsterdam in 1992, and the Millon Air B707 accident in Ecuador in 1996.

This accident was the result of a disconnect and subsequent jam in the linkage of the pitch control system, which rendered the aircraft uncontrollable. Evidence and analysis indicates that the bolt which attaches the pushrod to the tab crank fitting for the right-hand (R/H) elevator control tab was not in place during most or all of the accident flight, and the R/H elevator control tab was jammed in the airplane nose up (ANU) position. The flight crew varied bank angle and engine thrust in an unsuccessful attempt to control the aircraft enough for an immediate return to MHR. The DC-8's lack of provisions for overcoming jams in the flight control system (commonly referred to as 'split controls') contributed to the flight crew's inability to command sufficient elevator to maintain aircraft control. Although the root cause for the loss of the bolt is unknown, the most likely scenario is that the bolt's locking hardware was either never or improperly installed after maintenance activity by Emery.

In several respects, Emery's actions and methods were not representative of those of many other cargo operators. During this investigation, it became apparent that the FAA has tended to focus its oversight efforts more on passenger than on cargo operators; cargo operators have been relatively self-policing. Since 1984, the NTSB has conducted at least 38 accident investigations involving cargo operators. These investigations have resulted in numerous recommendations to both the FAA and the cargo operators, but these efforts to rectify the safety deficiencies of the air cargo industry have been relatively piecemeal and ineffective. Given these factors, it is likely

that we have not identified all the safety issues associated with cargo operations, and it is clear that a systematic and comprehensive approach is warranted. A public hearing or forum on air cargo operations would provide vital information on the scope and depth of this problem, as well as enable the beginnings of appropriate solution methods.

In the course of investigating this accident, several contributing and ancillary safety deficiencies were identified. These included:

Emery World Airways Maintenance Capabilities and Practices

Despite the fact that EWA was a large airline owned by a well-resourced corporation (CNF), Emery's maintenance processes and programs were in such disarray, and ineffective enough, that the airline was continually plagued by excessive, repetitive mechanical problems with its aircraft, many of which resulted in air turn backs, serious incidents, and other operational difficulties. In 2001, the FAA forced Emery to cease operations until the airline rectified this situation

Safety Culture at Emery World Airways

Emery World Airlines lacked a functional or effective safety culture. Emery, its parent (CNF) and customer (EWW) upper management prioritized moving cargo over operating its crews and aircraft in a safety-oriented environment. The lack of requirements for any type of DOT recurring fitness review contributed to the government's failure to detect and correct many of the underlying organizational problems, processes and behaviors which eventually led to the crash of Emery Flight 017.

FAA Oversight of Cargo Operators

Night-oriented operating schedules, widespread distribution of airports served by cargo operators, and the fact that many of these airports are not those populated by the passenger carriers, combined with the FAA's limited resources, tends to result in limited FAA oversight of cargo operators.

Aircraft Issues

Differences between current and previous certification regulations, combined with a lack of retroactive effectivity of these regulations, result in reduced levels of safety for transport aircraft such as the DC-8. Unlike newer transport aircraft, the DC-8 was not required to be equipped with either provisions for overcoming jams in the flight control system, or redundant fastener locking devices on certain critical joints in the flight control linkage.

Cargo Loading

The organizations and personnel directly responsible for loading cargo aircraft are only minimally regulated by the FAA. This forms the basis for a system which permits or even promotes a 'weak link' in the air transportation system. There have been numerous incidents and accidents due to improperly loaded cargo, and this unnecessary risk exposure must be addressed and reduced or eliminated.

ALPA's findings and safety recommendations are presented in this cover letter and the ALPA submission.

Section G: FINDINGS

1) This accident was the result of a disconnect and subsequent jam in the linkage of the pitch control system, which rendered the aircraft uncontrollable.
2) The bolt which attaches the pushrod to the tab crank fitting for the right-hand (R/H) elevator control tab was not in place during most or all of the accident flight, and the R/H elevator control tab was jammed in the airplane nose up (ANU) position.
3) The most likely scenario is that the bolt's locking hardware was either never or improperly installed after maintenance activity by Emery.
4) The DC-8's lack of provisions for overcoming jams in the flight control system (commonly referred to as 'split controls') contributed to the flight crew's inability to command sufficient elevator to maintain aircraft control.
5) EWA/EWW/CNF upper management placed the highest priority on keeping the aircraft flying, with little regard to the FARs, or the airworthiness of the aircraft and sometimes even the flight and maintenance personnel.
6) The existing FAA processes and resources were not sufficiently effective to permit the timely identification and correction of these discrepancies at EWA.
7) Emery was a large airline, wholly owned by a large, well-financed corporation, CNF.
8) Emery was owned by its 'customer', CNF.
9) Emery operated a large, mixed, and relatively old fleet of DC-8 aircraft.
10) Emery's maintenance processes and programs were in such disarray, and ineffective enough, that the airline was continually plagued by excessive, repetitive mechanical problems with its aircraft, many of which resulted in air turn backs, serious incidents, and other operational difficulties.
11) In several respects, Emery was a 'virtual airline'.
12) Emery had no maintenance hangars anywhere in its system, including its main operations hub in Dayton.
13) Most of Emery's day-to-day maintenance was conducted at its domestic outstations by contract mechanics.
14) With the exception of those at the Dayton hub, the majority of Emery's loading personnel were also contract employees, and included a significant number of part-time personnel.
15) Between February and June 2001, the FAA proposed civil penalties against Emery for numerous maintenance-related airworthiness violations.
16) Emery World Airlines lacked a functional or effective safety culture.
17) There were numerous discrepancies between the Emery Operations Specifications, the Maintenance Policy and Procedures Manual, the actual responsibilities of several key maintenance personnel, and the day-to-day operations of Emery.
18) Certain individuals at Emery had inordinately large spans of control, often ranging across several distinct functions and disciplines.

19) Emery's maintenance organization issues adversely affected and placed additional burdens on its outside maintenance providers.

20) The FAA cited (on a repeated basis over several years) Emery's maintenance manuals as being out-of-date, difficult to use, inaccurate, incomplete, and not approved by the FAA.

21) Emery's work cards were seriously deficient.

22) Emery's inactions subsequent to the discovery of the reversed elevator dampers on the accident aircraft were indicative of a lack of a proactive, safety-conscious attitude.

23) The FDR data regarding control column position on the accident aircraft was unreliable.

24) This FDR problem was not limited to the accident aircraft.

25) Aileron re-rigging practices and results were indicative of Emery's poor maintenance communication, coordination, workmanship and quality control.

26) The frequency and volume of Emery's repetitive maintenance write-ups were indicative of Emery's flawed maintenance program and additional underlying organizational problems.

27) 'Pencil whipping' could explain some of the maintenance difficulties that occurred at Emery.

28) Emery maintenance practices enabled the acquisition and use of unapproved parts on its aircraft.

29) In direct conflict with the FARs and the underlying philosophy of the MEL, Emery independently developed and used what it referred to as "non-MEL deferrals" of components that directly affected the airworthiness of the aircraft.

30) Emery's safety processes were nowhere near as robust or effective as they could or should have been.

31) Many Emery flight crew members viewed the Emery Safety Office as ineffective.

32) With regard to the FAA's limited ability to provide adequate and effective oversight, and the acknowledged benefits of a strong safety culture, existing industry practices and regulations do not necessarily or consistently result in the desired level of safety.

33) Night-oriented operating schedules, widespread distribution of airports served by cargo operators, and the fact that many of these airports are not those populated by the passenger carriers compound the logistical difficulties of accomplishing adequate FAA oversight.

34) The SJC CMT's recommendations were overridden by FAA superiors without coordination or consultation with the manager of the CMT.

35) If the FAR (25.671) requiring split controls or their equivalent was retroactive and applied to the DC-8, this accident might not have occurred.

36) If the FAR (FAR 25.607) requiring dual locking fasteners was retroactive and applied to the DC-8, this accident might not have occurred.

37) The Elevator Position Indicator (EPI) does not enable flight crews to accurately verify the basic functionality and integrity of the DC-8 pitch control system.

38) The 80 knot check does not constitute a definitive verification of the functionality of the DC-8 pitch control system.

39) Although the functionality of the elevator control system was severely compromised, the crew of Emery 017 properly conducted the required cockpit flight control checks but did not receive any indication of a problem with the system.

40) The personnel and organizations responsible for cargo preparation and loading, a critical element directly affecting flight safety, are not certificated by the FAA.

41) Throughout the industry, there have been numerous incidents and accidents due to improperly loaded cargo.

42) There is a lengthy and well documented history of improper aircraft loading at Emery.

Section H: SAFETY RECOMMENDATIONS

As a result of this investigation, the Air Line Pilots Association offers the following safety recommendations.

To the National Transportation Safety Board:

1) Conduct a public hearing or forum on air cargo safety and operations to provide vital information on the scope and depth of safety problems, as well as to enable the beginnings of appropriate solution methods to address these problems.

To the Federal Aviation Administration:

2) Require that all aircraft certified under CAR 4b or FAR Part 25 be equipped with dual locking fasteners on all critical (where the loss of a fastener may result in a catastrophic single point failure) flight control system joints.

3) Require that all aircraft certified under CAR 4b or FAR Part 25 be equipped with devices or means to enable the flight crew to maintain control of the aircraft in the event of a flight control failure or jam.

4) Require that all DC- 8 aircraft be modified to provide flight crews with an accurate and reliable means to determine the basic integrity and functionality of the aircraft's elevator system.

5) Require (unless or until the DC-8 is modified in accordance with ALPA safety recommendation 4) that the existing EPI system and procedures be modified to:
   - Be readily visible to and readable by both the Captain and the F/O.
   - Contain a graduated scale and explicit go/no-go limits.
   - Be checked for accuracy periodically.

6) Require that all Part 119/121/135 airlines obtain and utilize consolidated maintenance manuals that are dedicated (from a configuration and equipment standpoint) to the specific aircraft in their fleet.

7) Require that all maintenance providers (e.g. certified repair stations, contract personnel, etc.) for Part 119/121/135 airlines utilize the respective operators' consolidated maintenance manuals that are dedicated (from a configuration and equipment standpoint) to the specific aircraft in their care.

8) Require that all Part 119/121/135 airlines obtain and utilize maintenance work cards which contain:
   - Tasks broken down into manageable increments
   - Procedures and provisions for shift or personnel changes
   - All necessary references or information
   - Line-by-line inspection signoff provisions

9) Require that all maintenance providers (e.g. certified repair stations, contract personnel, etc.) for Part 119/121/135 airlines utilize the operators' applicable maintenance work cards which contain:
   - Tasks broken down into manageable increments
   - Procedures and provisions for shift or personnel changes
   - All necessary references or information
   - Line-by-line inspection signoff provisions

10) Implement procedures to ensure that deficiencies in an operator's CASS system are corrected in a timely manner.

11) Develop and implement a system (similar to Transport Canada's Safety Management System) which would require every FAR Part 119/121/135 operator to integrate safety risk management, including responsibilities and accountabilities, into corporate planning and performance at all levels of the corporation.

12) Develop and implement a system (similar to Transport Canada's Safety Management System) which would require airline maintenance organizations, manufacturing organizations, airports, and air traffic service organizations to integrate safety risk management, including responsibilities and accountabilities, into corporate planning and performance at all levels of the organization.

13) Require that organizations and personnel directly responsible for loading of cargo aircraft be certificated by the FAA.

14) Require that air cargo operators provide flight crew members with procedures, strategies and training to identify and counteract CG-induced problems during takeoff and/or continued flight.

To the Department of Transportation:

15) Examine methods to improve communications between the FAA Certificate Management Offices and DOT office(s) responsible for continuing fitness reviews of all FAR Part 119/121/135 air carriers.

16) Evaluate the utility of a requirement for regular, recurrent fitness queries by the DOT to the FAA on a rotating-carrier basis for all FAR Part 119/121/135 air carriers.

17) Evaluate, and improve the effectiveness of existing DOT/FAA program(s) designed to identify and prosecute individuals or organizations accountable for intentional falsification of maintenance records.

18) Evaluate, and improve the effectiveness of existing DOT/FAA program(s) designed to identify and prosecute individuals or organizations accountable for the use and/or manufacture of unapproved parts.

ALPA appreciates the opportunity to have participated as a party to the investigation and believes that the attached comments, findings and recommendations will be of assistance to the Safety Board.

Sincerely,

Captain Todd Gunther
ALPA Coordinator
Air Line Pilots Association Intl.