

107# 5003



# National Transportation Safety Board

Washington, D.C. 20594  
Safety Recommendation

Date: September 1, 1987

In reply refer to: A-87-105 and -106

Honorable T. Allan McArtor  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

On July 8, 1987, at 1626 Universal Coordinated Time (UTC), Delta Airlines flight 37 (DL 37), a Lockheed L-1011-250, flew within approximately 30 feet of Continental Airlines flight 25 (CO 25), a Boeing 747-200. Both airplanes were westbound at flight level 310. The incident occurred in a nonradar environment, in airspace controlled by Gander Oceanic Control, near coordinates 52° N and 40° W. The coordinates correspond to a position on track D, the North Atlantic Track (NAT) to which CO 25 had been assigned. Preliminary evidence indicates that DL 37, which had been assigned NAT C, deviated over 60 miles from the track before it attempted to resume its assigned course.

The investigation of the near midair collision is being conducted by the Canadian Aviation Safety Board, with the full participation of the National Transportation Safety Board. Although the investigation is not yet complete, it has raised several issues which the Safety Board believes deserve immediate corrective action.

Reports of gross deviations from assigned oceanic tracks are unusual, particularly with the widespread use of highly accurate airborne navigation equipment; however, this incident, as well as data collected through the National Aeronautics and Space Administration's (NASA) Aviation Safety Reporting System (ASRS), suggest that such deviations take place with sufficient frequency to pose a clear and direct threat to flight safety. The Federal Aviation Administration (FAA) has addressed this issue in Advisory Circular (AC) 90-79, issued on July 17, 1980, which suggests procedures to be used by flightcrews to maintain a continual awareness of the accuracy of transoceanic navigation data. However, such procedures are advisory only and not mandatory.

The Safety Board believes that procedures that provide continual verification of navigation data should be required and not merely recommended. Many carriers that regularly engage in transoceanic flight require flightcrews to maintain continuous awareness of present and predicted positions through the inertial navigation systems (INS), inertial reference systems (IRS), or Omega navigation systems (ONS) on board almost all transport aircraft engaged in transoceanic flight. These techniques, while varying slightly among air carriers, require flightcrews to perform several common actions. These include:

1. Plotting the oceanic waypoints on a map or chart of the area to be traversed;
2. assigning different crewmembers responsibility for entering and verifying data entered into the navigation system;

3. matching calculated distances between waypoints against distances provided on the aircraft's flight plan, following insertion of waypoint coordinates into the on-board navigation system;
4. matching the displayed position coordinates against those of radio navigational facilities as they are crossed, before reaching the outbound gateway;
5. matching the coordinates of waypoints against those on the flight plan, when crossing a waypoint and at some point thereafter, but before reaching the next waypoint; and
6. matching estimated times and distances between waypoints against those provided on the flight plan.

The investigation has found that the crew of DL 37 performed only one of these procedures, that of requiring different crewmembers to enter and verify information entered into the navigation system. In fact, the investigation revealed that Delta crewmembers are not supplied with oceanic charts to graphically display the coordinates and path of the assigned route or track, as recommended by AC 90-79. Consequently, the DL 37 flightcrew did not plot their present or predicted positions upon crossing waypoints, or perform other track verification procedures while en route.

The Safety Board believes that the FAA should require that flightcrews of U.S. operators who engage in transoceanic transport under 14 CFR 121, perform a variety of initial and en route navigation verification techniques during oceanic crossings. Moreover, due to the potentially catastrophic consequences that can result from oceanic navigation errors, the Safety Board urges the FAA to require that such procedures be implemented at the earliest possible date.

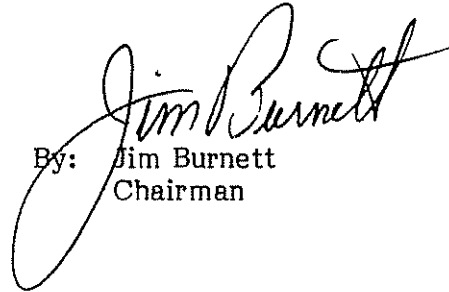
The investigation also revealed that the incident was not reported to Gander Oceanic Control by either DL 37 or CO 25 or by other aircraft in the immediate vicinity. Although the flightcrew of CO 25 reported the incident upon landing, the Safety Board believes that it should have been reported immediately, in accordance with Federal aviation regulations and International Civil Aviation Organization (ICAO) rules. Because the incident was not reported in a timely manner, the responsible air traffic control facility was unaware of the gross navigation error and could not guide DL 37 to a safe position on a track free of conflicting traffic. When DL 37 returned to track C, it was unaware of the location of other aircraft on the track, and as a result, it could have created an additional hazard to other aircraft. The Safety Board believes that the failure of other aircraft in the area to report the incident to Gander Oceanic Control demonstrates the need for airlines to reemphasize to their flightcrews instrument flight rules procedures, in general, and overwater, international rules of operation, in particular.

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

Require that during oceanic crossings, flightcrews of U.S. operators who engage in transoceanic transport under 14 CFR 121, employ at least two initial and three en route verification techniques, each different from the others, that will provide adequate protection against the use of incorrect navigation information. (Class I, Urgent Action) (A-87-105)

Issue an air carrier operations bulletin to the principal operations inspectors (POIs) of all operators engaged in transoceanic air transport, under the requirements of 14 CFR 121, citing the circumstances of the July 8, 1987 incident and directing the POIs to emphasize to the operators the rules that apply to transoceanic operation in a nonradar environment. (Class II, Priority Action) (A-87-106)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and LAUBER, NALL, and KOLSTAD, Members concurred in these recommendations.

  
By: Jim Burnett  
Chairman