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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: August 31, 1984

Forwarded to:

Honorable Donald D. Engen
Administrator
Federal Aviation Administration
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

A-84-99103

On May 28, 1983, Republic Airlines Flight 366, a DC-9-30, was on a scheduled passenger flight from Fresno, California, to Phoenix, Arizona, with 86 persons aboard, when the flightcrew determined en route that the airplane was nearly out of fuel. The fuel low-pressure warning light for the right engine illuminated and the fuel quantity transfer relay circuit breaker opened. After the flightcrew closed the circuit breaker, the fuel quantity gages indicated that the fuel tanks were nearly empty. The flight was landed safely at Luke Air Force Base, Arizona, about 20 miles short of the destination airport.

The Safety Board's investigation of the incident disclosed that the airplane's fuel system components functioned properly and that only 4 5/8 gallons of fuel remained in the airplane's tanks. Tests of the fuel quantity transfer relay circuit breaker and associated relays revealed no evidence of discrepancies. Further, the circuit breaker had apparently been in the open position while the airplane was: (1) flown from Phoenix to Fresno as Flight 365 on May 27, (2) on the ground overnight at Fresno, and (3) preflighted by the flightcrew on May 28 and flown toward Phoenix. The same flightcrew flew both flights.

According to fuel records, Flight 365 had about 15,000 pounds of fuel on board when it left Phoenix. After landing at Fresno, the station agent recorded about 15,000 pounds on the fuel quantity totalizer. Since the flight dispatch release for Flight 366 specified 14,400 pounds of fuel for the return flight to Phoenix, the airplane was not refueled at Fresno. Post incident calculations established that Flight 366 departed Fresno with about 7,000 pounds of fuel rather than the 15,000 pounds indicated on the fuel quantity totalizer.

The Safety Board recently has reviewed the Federal Aviation Administration's (FAA) Accident/Incident Data System information for other incidents involving fuel shortages on scheduled air carrier flights. This review disclosed two other incidents in 1983 in which the pilot-in-command discovered after departure that the airplane did not have the required amount of fuel on board for the scheduled flight. In both instances, the airplane was returned to the departure airport for additional fuel.

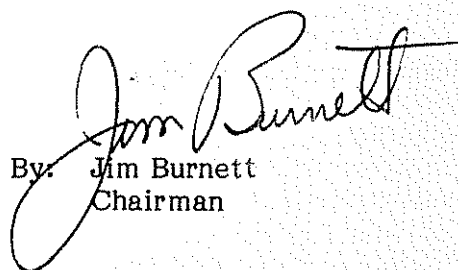
The review also disclosed a 1981 incident in which the flightcrew determined during flight that the DC-10 airplane probably did not have sufficient fuel aboard to reach its destination. A landing was made at an airport about 200 miles short of the destination airport. During taxi to the passenger gate, two of the three engines flamed out and after parking at the gate, the third engine flamed out. All usable fuel on board the airplane had been consumed. In another incident in 1979, the captain of a B-707 airplane landed at an airport short of his destination airport after discovery of insufficient fuel on board to complete the scheduled flight.

The Safety Board is aware that in June 1983, following the Republic Airlines incident mentioned above, the FAA conducted a special investigation of Republic's flight operational procedures and management structure. In response to the findings of the investigation, Republic has made numerous changes to its flight operations organizational structure, Flight Operations Manual, and Pilot Handbooks. Several of the changes pertained to fuel planning and recording requirements; these changes should preclude a recurrence of the May 28, 1983, incident.

Notwithstanding the FAA's commendable activities related to the Republic Airlines incident and the comparatively few other reported incidents of fuel shortages, the Safety Board believes that the potentially catastrophic consequences related to fuel exhaustion are sufficiently serious to warrant action to prompt all airlines to focus attention on procedures involving fuel planning, servicing, and operational awareness. Accordingly, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue an Operations Bulletin for all air carrier operations inspectors to make fuel awareness on the part of flightcrews, including fuel consumption planning and full familiarity with the functioning of the fuel system and its instruments, a subject of special attention during performance of the inspectors' flight check and surveillance duties.
(Class II, Priority Action) (A-84-99)
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BURNETT, Chairman, GOLDMAN, Vice Chairman, BURSLEY and GROSE, Members, concurred in this recommendation.


By: Jim Burnett
Chairman