

DEPARTMENT OF COMMERCE
BUREAU OF AIR COMMERCE
Washington

STATEMENT OF PROBABLE CAUSE CONCERNING AN ACCIDENT WHICH
OCCURRED TO AN AIRCRAFT OF CHICAGO & SOUTHERN AIR LINES,
INCORPORATED, AT ROBERTSON, ST. LOUIS, MISSOURI, ON
AUGUST 5, 1936

To the Secretary of Commerce:

On August 5, 1936, at approximately 10:00 p.m. at a point near Lambert Field, Robertson, St. Louis, Missouri, an airplane of United States registry, piloted by licensed airmen, while being flown in scheduled interstate operation carrying mail, passengers and express, met with an accident resulting in death to all persons on board and the complete destruction of the aircraft.

The airplane, a Lockheed Electra, model 10-B, had been regularly inspected by the Bureau of Air Commerce on July 23, 1936, and bore Federal license number NC-16022. It was owned by the Chicago and Southern Air Lines, Incorporated, and at the time of the accident was being operated by that corporation on Scheduled Trip No. 4, New Orleans to Chicago.

The pilot, Carl F. Zeier, held the necessary Federal transport pilot's license and scheduled air transport rating. Records of the Bureau of Air Commerce show that he was in good physical condition at the time of his latest physical examination on May 28, 1936. The copilot, Russell C. Mossman, held a Federal transport pilot's license and a scheduled air transport rating. His latest physical examination, taken on May 19, 1936, showed him to be in good physical condition. The passengers on board were as follows:

W. S. Bartlett, Chicago, Illinois
George Grishaber, Oak Park, Illinois
A. R. Holt, Boston, Massachusetts
D. R. McDavitt, Chicago, Illinois
V. C. Omlie, Memphis, Tennessee
C. B. Wright, Hinsdale, Illinois

The flight was cleared from Lambert Field, Robertson, St. Louis, Missouri, at 9:55 p.m. About thirty minutes previous to the take-off the ceiling measured 1800 feet. At the time of take-off it was estimated to be the same. Visibility was 3/4 of a mile and there was a moderate fog. At the same time the ceiling at Springfield, Illinois, (enroute) was down to 800 feet, but at Peoria and on to Chicago, Illinois, the destination, it was unlimited. The visibility was generally poor, ranging from 3/4 of a mile to 2 miles, due to the presence of fog, haze or smoke at various points along the way. The weather obviously indicated that instrument flying would be necessary over approximately the first half of the flight. However, this would not be considered hazardous with good weather existing at Chicago, the destination. The weather was growing worse at Lambert Field, as evidenced by a special weather report about 15 minutes after the take-off which gave the ceiling as 500 feet, a drop of 1300 feet. It is very probable that this lower ceiling existed just outside of the airport to the north, the general direction of flight.

Tracing the flight from the airport to the point of accident through the testimony of witnesses develops the following: The airplane proceeded on course for a distance of approximately two miles from the airport, flying at an extremely low altitude. At this point and still at a low altitude, a sharp left turn was made, heading the airplane back in the direction of the airport. Near the completion of this turn, marks on the ground indicate that the left wing of the airplane contacted the ground, resulting in the accident.

Most of the witnesses agree that the engine sounded normal until the moment of impact. This was substantiated by a careful inspection of the engines and propellers, which indicated that they were turning at cruising speed or better at the time of impact. Other than this, nothing indicative was found in the wreckage.

However, it is not believed that a structural or control failure of the airplane was involved for had the pilot been confronted with either, it is only logical to

assume that he would have throttled or stopped the engines prior to contacting the ground. His radio transmitter and receiver were functioning normally not more than 10 minutes previous to the accident and one receiver, found tuned to the Department of Commerce radio range frequency, functioned after the accident without any repairs or replacements. Marks on the ground indicate definitely that the left wing of the airplane dragged the ground while making a sharp turn and that the accident was not the result of a spin or stall. Available evidence is insufficient to indicate any definite reasons for the pilot remaining so close to the ground for the short duration of the flight or why he turned the airplane back toward the airport.

In considering the facts and circumstances surrounding the accident, it must be remembered that the accident occurred within two miles of the edge of the airport and that the total time the airplane was in the air was almost certainly not more than two minutes. That the airplane was flying abnormally low is testified to by people living along the air route, close to the airport, and accustomed to hearing and seeing airplanes of this and numerous other transport types fly over them. In the little hollows along this part of the course, ground fog, rather dense in spots, was in the process of formation. It did not extend far above the ground, as indicated by the fact that light from the airport revolving beacon could be seen from the immediate vicinity of the accident and witnesses on the ground were able to see the navigation lights of the airplane for a distance they estimated at a mile or more. Judging from the direction and velocity of the wind, the lower ceiling described in the special weather report must have been within a mile of the airport at the time of take-off and it is reasonable to assume that the airplane entered this area within the first minute of flight. It should also be noted that airplanes of this type have a decided tendency to lose altitude on a left hand turn and extreme care is necessary when banking them close to the ground.

Several theories are suggested as to the cause of this accident. However, there is insufficient evidence to substantiate any of them. It is felt that the airplane was thoroughly controllable and that the turn back in the direction of the airport was a voluntary maneuver. Apparently, the pilot, after lifting the airplane into the air, became concerned either with some unexpected irregularity such as the functioning of some part of the airplane and made a turn toward the airport without realizing his nearness to the ground. However, it is not believed that any condition arose of a severity which would have prevented the pilot from acquiring more altitude before attempting to make a turn.

It is the opinion of the Bureau of Air Commerce that the probable cause of this accident was making a turn at an extremely low altitude, for reasons unknown, in which the wing of the airplane unintentionally contacted the ground.

Contributory causes were:

1. The undeterminable factor which caused the pilot to believe that a turn toward the airport was necessary.
2. The pilot's judgment in not holding or increasing his altitude when he decided that the turn was necessary.

Respectfully submitted,

Eugene L. Vidal
Director of Air Commerce