

## CIVIL AERONAUTICS BOARD

## ACCIDENT INVESTIGATION REPORT

Adopted: June 13, 1946

Released: June 14, 1946

EASTERN AIR LINES - NEW YORK, NEW YORK - DECEMBER 30, 1945The Accident

Eastern Air Lines' Flight 14, attempting to land at La Guardia Field, New York, N. Y., at 2113, EST\*, December 30, 1945, was unable to stop within the boundary of the airport, crashed through a localizer building located at the end of the runway and came to rest in Flushing Bay. Twelve of the occupants sustained minor injuries, one was injured seriously and one passenger was drowned. The Douglas DC-3 was extensively damaged.

History of the Flight

Flight 14 departed Jacksonville, Florida, for New York, N. Y., 1209, December 30, 1945, with scheduled stops at Savannah, Ga., Columbia, S. C., Raleigh, N. C., and Richmond, Va. The original schedule included a landing at Washington, D. C., but that stop was not made because weather conditions at Washington were below the authorized instrument minimums for that station. After "holding" at Doncaster, Va., for 45 minutes in anticipation of a landing at Washington, the flight proceeded to Philadelphia, Pa., and landed at Philadelphia at 1938.

Because of heavy traffic into New York the flight was delayed at Philadelphia for approximately 30 minutes. Departure was made at 2025 and at that time no further traffic delay was expected. The flight proceeded northeast to the Metuchen Fan Marker and after having reported over Metuchen was advised to contact La Guardia Approach Control. Approach Control advised

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\*All time referred to in this report is Eastern Standard and based on the 24-hour clock.

Flight 14 to descend to 1500 feet enroute to Coney Island. When over Coney Island at 1500 feet the flight was cleared to La Guardia Tower and received subsequent instructions from the tower. La Guardia Tower advised the flight that it was number 1 to land on runway 13, and that the local weather was: ceiling 500 feet; visibility two and one half miles; wind 15 mph southeast.

A standard radio range instrument approach to the northeast was made with initial crossing over the range station at 1200 feet. The flight began the final descent towards the field, however, the captain stated that visual contact was not established until approximately at 500 feet over the edge of the approach lights to runway 4. Believing that he did not have sufficient time to turn into a landing approach to the southeast, the pilot initiated a missed approach procedure and requested instructions from La Guardia Tower.

Flight 14 was offered the use of the Automatic Direction Finding Approach Control facilities installed at La Guardia Field and, being familiar with the procedures involved, the pilot executed an ADF approach in his second attempt. During the approach procedure, the Eastern Air Lines' pilot decided to attempt a straight-in landing in order to avoid the necessity of maneuvering under the 500 foot ceiling to align the aircraft with another runway. The second approach was again high and when over the edge of runway 4 at 300 feet, the pilot testified that he decided to go around again. The pilot stated, however, that in attempting to apply take-off power, the left engine back-fired and would not indicate more than 15 inches of manifold pressure. At that time he observed a bright red flare from the left engine, and, being apprehensive of engine failure under the conditions which existed, he stated further that he throttled back both engines completely and forced the aircraft on to the runway.

Initial contact with the runway occurred well down the runway at an airspeed considerably above the stalling speed of the aircraft. The aircraft bounced approximately 20 feet in the air and remained airborne for several hundred feet before again contacting the runway. After another shorter bounce the aircraft remained on the runway and brakes were applied in an attempt to stop. However, due to the airspeed, which was still relatively high, and the snow and slush which covered the runway, little deceleration was accomplished. The aircraft continued off the end of the runway, demolished a small wooden building which housed the localizer transmitter, and came to rest in Flushing Bay approximately 200 feet beyond the field boundary.

Subsequent rescue efforts by personnel of the Coast Guard, the Pan American Airways, and the New York City Police Department, succeeded in the removal of the occupants of the aircraft. However, one passenger did not respond to artificial respiration and comprised the only fatality.

### Investigation

Witnesses to the second approach of Flight 14 testified that the aircraft was seen to descend to an altitude of about 300 feet approximately one mile southwest of the airport boundary. While banking slightly in both directions as it maneuvered to align with runway, the aircraft maintained a fairly constant altitude until past the edge of the runway. An abrupt change in flight path was then observed and the aircraft descended rapidly. Testimony of witnesses indicated that initial contact was made at a point approximately 3500 feet from the approach end of the runway and that the aircraft bounced noticeably and remained airborne for a considerable distance before a second contact was made.

Ground observers noticed that at least one sign of "torching" was apparent during the second approach, but that it did not resemble or suggest engine fire. The testimony consistently referred to the bright flare which was momentarily observed during the approach as indicative of a rich mixture.

In view of the possibility of malfunction of the left engine or of engine fire, the engine and its controls were subjected to exhaustive inspection by Board specialists and by other government agencies. Within the investigation conducted, no indication of fire or excessive heat was observed. All engine controls and accessories were in satisfactory condition as far as could be determined and none gave any indication of malfunction or of the presence of fire.

The aircraft and engine performance reports up to and including the last one completed by Capt. S. Cavalier, pilot of the aircraft at the time of the accident, were inspected and all notations indicated that flight operations had been normal prior to the accident. The maintenance checks and overhaul records were also inspected and indicated full compliance with the standards established by the Civil Aeronautics Administration. No irregularities were observed in any of the records pertaining to the aircraft involved.

Review of the weather data available to the flight prior to departure from Philadelphia, revealed the following synoptic situation: a deep low pressure system was centered at the southern extreme of Lake Huron having one well-defined cold front which extended southward through eastern Ohio and western West Virginia, and a weak warm front preceding it, which, although included in the Weather Bureau forecast for the period, eventually was dropped from the synoptic charts because of lack of definition. The low center was moving east-north eastward at approximately

35 mph, causing a southeasterly circulation into Delaware, New Jersey and New York, with a wide trajectory over the Atlantic Ocean. The relatively warm maritime air flowing into the North Atlantic states provided a stable condition conducive to low ceilings and fog. As the low center approached the New England area, the gradient circulation was gradually swinging from the south towards the southwest.

Towards the evening of December 30, diurnal cooling and rain from higher clouds augmented the trend, and ceilings and visibilities throughout the area continued to drop. Several stations in the vicinity of Washington reported below minimum conditions by 1830 and by 1930 the entire Atlantic coast from Quantico to Northern New Jersey was covered by ceilings below 600 feet. La Guardia ceilings had dropped from 1500 feet at 1630 to 500 feet at 2030 and the visibility from 4 miles to 2 miles in that same period.

The alternates provided the flight upon departure from Philadelphia were Newark and Floyd Bennett Fields. Newark weather was reported as ceilings 500 feet; visibility one and one half miles. While the existing weather at Floyd Bennett was reported as 1200 feet overcast and five miles visibility five minutes after departure of the flight from Philadelphia the ceilings at both alternates were reported at 500 feet. Floyd Bennett is approximately 12 miles from La Guardia Field and the forecast used in determining the selection of the alternates was equally applicable to both fields. However, under the conditions of circulation which existed at the time, meteorological specialists in that area normally expect better conditions at La Guardia than at Floyd Bennett.

No records are maintained at La Guardia Field of weather transmissions from the tower to the flight and therefore the information concerning the surface winds provided the pilot by the tower cannot be determined accurately.

The tower personnel and the pilots involved in the accident disagree as to the information furnished. The pilots testified that they were not informed of a wind shift from the southeast to the southwest although the tower operator on duty testified that the flight was advised on two occasions of such a windshift the latter of which was: wind southwest 13 mph.

Capt. Cavalier testified that he had not consulted a synoptic weather map since leaving Miami at 0800 that morning. No wind data was consulted before or after leaving Philadelphia, nor was any information supplied him or requested by him concerning the weather trends at his alternate airports in spite of the fact that both alternates were below minimums during the flight from Philadelphia to La Guardia.

#### Discussion

In view of the possibility of engine failure having adversely affected the flight, considerable significance was attached to the testimony of the pilots concerning the difficulty experienced with the left engine. However, no trace of equipment failure was disclosed in the investigation of the engine following salvage of the wrecked aircraft and no evidence of fire was indicated. In spite of effects of submersion and collision with objects beyond the runway, the engine and its accessories proved to be in surprisingly good condition. Although the captain testified that the manifold pressure did not increase beyond 15 inches, no reason for such a situation can be determined. From the fact that investigation revealed the throttle controls to be in good condition, it can be concluded that the manifold pressure gauge should have indicated at least atmospheric pressure when the throttles were opened regardless of the condition of the engine. Malfunction of any other engine accessories and even complete engine failure could not have caused the manifold pressure to remain at 15 inches. It must be concluded, therefore, that the left engine was functioning satisfactorily at the time of the approach and landing.

The time required for the flight from Philadelphia to the LaGuardia range station was 32 minutes including take-off and climb at Philadelphia. The average ground speed for the aircraft was therefore slightly more than 190 mph. In view of the fact that the true airspeed of the flight was less than 160 mph, Capt. Cavalier should have been aware that he was benefitting from a tail wind component of at least 30 mph at 1500 feet. However, he failed to take the wind sufficiently into consideration and, furthermore, testified that he did not check the wind data before or after leaving Philadelphia. Being unfamiliar with the recent synoptic situation, Capt. Cavalier was apparently not able to evaluate the condition of the weather at La Guardia and, as a result, after missing the first approach decided on a course of action contrary to that required under the circumstances. There is little doubt that Capt. Cavalier should have had an accurate estimate of the winds from the surface to 1500 feet and that he should have been able to make the adjustments in approach necessary for a safe landing. Had the direct approach to runway 4 been satisfactory, the landing may have been executed safely even under tail wind conditions. But it is apparent that the instrument approaches were inaccurate because he failed to take into consideration winds aloft and that under the conditions imposed by a faulty approach, his decision to land was in error because of adverse surface winds, of which he was not aware.

The selection of alternate airports indicated very poor judgment in company dispatching and pilot flight planning. The trends for the six hours preceding the accident were unmistakably towards lowering ceilings and visibilities in the New York area. Newark airport was already reporting

conditions below minimum specified in Civil Air Regulations\*. Floyd Bennett Field, although reporting contact conditions in the last hourly sequence, was the only station throughout the area which reported such favorable conditions and it would have been reasonable to regard such conditions as transitory in nature in view of the general observations of low ceilings and visibilities. Moreover, in view of the fact that the weather at both alternates was below the minimums for landing at those fields at approximately the time of take-off from Philadelphia, it is apparent either that company forecasting techniques were inaccurate or that insufficient care was exercised in the selection of alternate airports. No attempt was made to advise the pilot that the conditions of both alternates during the flight were as poor or worse than those at his destination, nor did Capt. Cavalier at any time attempt to check the conditions at his alternates during the flight.\*\*

\*CAR 61.71092 TYPES OF ALTERNATE AIRPORTS. (a) If an alternate referred to in § 61.71091 is equipped with a radio range, the weather conditions existing thereat at the time of clearance must be equal to, or above, the ceilings and visibilities specified in the air carrier operating certificate for letting-down-through at such airport when using it as an alternate airport and the hourly weather report sequence and current forecasts shall show a trend that indicates that such weather conditions will continue or improve at such alternate airport until the flight shall arrive thereat. The weather minimums at such alternate airport shall in no case be less than one of the following.

- (1) A ceiling of 1,000 feet and visibility of 1 mile;
- (2) A ceiling of 900 feet with a visibility of 1½ miles;
- (3) A ceiling of 800 feet with a visibility of 2 miles.

\*\*CAR 61.71042(c) The dispatcher or duly authorized station personnel shall attach or enter all current reports or information pertaining to weather and irregularities of navigational aids and facilities and aircraft instruments and equipment affecting the flight. He shall also inform the pilot during flight, of any additional or different irregularities, and the flight shall be controlled accordingly.

CAR 61.7301 Alternate Airports. No scheduled air carrier aircraft shall continue toward the point cleared to unless the weather minimums at required alternate airports (§ 61.7109) specified in the clearance remain, throughout the flight, at or above the minimums specified in the air carrier operating certificate for such airport when used as an alternate: Provided, however, That the clearance may be amended en route by the substitution of another alternate airport within the fuel range of the aircraft as outlined in § 61.7021 with weather conditions at or above the minimums specified in the air carrier operating certificate for such airport when used as an alternate.

Inasmuch as the weather conditions throughout the area were close to or below minimum instrument conditions, it was incumbent upon both pilot and dispatch personnel to exercise particular caution in the selection of alternate airports, checking the weather trends enroute and at the destination, and determining with reasonable accuracy the winds prevailing at the destination. The failure on the part of dispatch and pilot personnel alike to give proper consideration to weather conditions indicates a lack of caution in pre-flight planning and in-flight weather observation. It must be concluded, therefore, that the pilot failed to fulfill his responsibilities as concerns checking of weather, and that the company failed to exercise adequate supervision over the flight in question.

The minimum ceiling and visibility for instrument approach to La Guardia Field are determined on the basis of that minimum weather condition which will still permit a pilot to circle beneath the overcast safely in order to land on any runway the existing wind may require. Weather conditions below these minimums constitute conditions unauthorized for instrument approach. Inasmuch as the weather at La Guardia Field was within the minimums prescribed by the Operating Certificate of the company, it should have been possible for the pilot of Flight 14, therefore, to have maneuvered safely beneath the overcast following a reasonably accurate approach and to have effected a landing on any runway available at La Guardia Field.

#### Findings

Upon the basis of all available evidence the Board finds that:

1. The company, aircraft and crew were properly certificated for the flight.
2. Inadequate caution was exercised in pre-flight planning and in-flight weather observation.
3. The aircraft and powerplants were functioning normally at the time of the accident.

4. The pilot was unfamiliar with the surface wind condition at La Guardia Field.

5. The pilot, in the belief that he was encountering engine trouble, attempted a landing despite a landing approach which was too high and too fast.

6. Initial contact with the runway was made at a point which provided insufficient room for a landing roll and at an airspeed considerably in excess of normal.

7. The pilot was unable to bring the aircraft to a stop in time to avoid overshooting the runway.

Probable Cause

The Board determines that the probable cause of this accident was the decision of the pilot in attempting a landing from an approach which was too high and too fast.

BY THE CIVIL AERONAUTICS BOARD:

/s/ Oswald Ryan

/s/ Harllee Branch

/s/ Josh Lee

/s/ Clarence M. Young

Chairman Pogue did not take part in the decision.

## SUPPLEMENTAL DATA

### Investigation and Hearing

The Civil Aeronautics Board was notified of the accident involving NC-18123, 2118, December 30, 1945, and immediately initiated an investigation in accordance with the provisions of Section 702 (c)(2) of the Civil Aeronautics Act of 1938, as amended. An Air Safety Investigator of the Board's New York office arrived at the scene of the accident at 2200, the same date and was joined by others of the Safety Bureau staff. The Board ordered a Public Hearing which was held at New York, N. Y., on January 7 and 8, 1946.

### Air Carrier

Eastern Air Lines, Inc., a Delaware corporation with headquarters in New York City was operating under a certificate of public convenience and necessity and an air carrier operating certificate, both issued pursuant to the Civil Aeronautics Act of 1938 as amended. These certificates authorized the company to transport persons, property and mail between various points in the United States including Miami, Fla., and New York, N. Y.

### Flight Personnel

Capt. Silvio Cavalier, age 38, had accumulated a total of 3057 hours, 4957 hours of which were in Douglas DC-3 equipment. First Officer Raymond E. Shirley, age 22, has accumulated a total flying time of 967 hours of which 215 hours were as co-pilot in DC-3 equipment. Miss Neal Allen Torsley was Flight Attendant. Both pilots were properly certificated for the flight involved and the Captain was qualified for the route.

### Aircraft

The Douglas DC-3, was properly certificated. Since its purchase by the company in 1937, it had flown a total of 21,348 hours, 4,676 hours of which were accumulated since the last major overhaul. It was equipped with two right Cyclone C-202A engines with 10,917 and 13,454 hours for the left

and right engines respectively, and 210 hours since the last major overhaul. Hamilton Standard propellers were installed. On departure from Philadelphia, the total weight was less than the maximum authorized gross, and the distribution of the load was within approved limits.