

C I V I L A E R O N A U T I C S B O A R D

ACCIDENT INVESTIGATION REPORT
(REVISED)

Adopted June 12, 1946

Released: June 13, 1946

EASTERN AIR LINES - USAF - NEAR FLORENCE, S. C., JULY 12, 1945

The Accident

An air collision between Eastern Air Lines' Flight 45 en route from Boston, Mass. to Miami, Florida, and a USAF A-26 engaged in a local practice flight at 1436 EWT*, July 12, 1945, resulted in fatal injury to one occupant of the DC-3 and to two occupants of the Army aircraft. Three passengers and the four crew members of the airliner received injuries which were not critical. The DC-3 received major damage and the army aircraft was demolished.

Description of the Flight

Flight 45 of Eastern Air Lines departed Boston, Mass., at 0855, July 12, 1945, for Miami, Florida, with stops scheduled at New York, N. Y., Washington, D. C., Columbia, S. C., and Jacksonville, Fla. A complete crew change was made at New York and the subsequent flight to Washington was of a routine nature. The flight departed Washington at 1222 and proceeded uneventfully until reporting "over" Florence at 1431. However, prior to reporting over Florence the flight had left the airway (number 7) and five minutes after the 1431 position report was approximately eight miles to the west of the airway. While passing Florence it was letting down at approximately 200 feet per minute towards Columbia, S. C., its next scheduled stop about 62 miles away, and was at 3100 feet at the time of the accident.

At 1315, an Army A-26 left the base at Florence for a two hour training mission and proceeded directly to an area 40 miles northwest of Florence

*All times referred to herein are Eastern Air and based on the 24 hour clock.

designated for military practice. Here its pilot engaged in certain military flight maneuvers which were completed in approximately thirty minutes. He then left the restricted area to return to Florence Army Air Field. When about 15 or 20 miles from the field he started practicing aural null procedures using the Florence radio range station. At approximately 1436, the pilot entered a left turn of 15 to 20 degrees of bank and with an air-speed of 220 mph during which he was listening for the change in signal which would indicate the relative bearing of the station from the aircraft. He estimated that he remained in the turn for one or one and one-half minutes and upon rolling out of the turn he saw the DC-3 almost directly ahead of him.

The captain of the DC-3 first observed the A-26 a very short distance off his left wing in a direction of flight almost at right angles to that of his aircraft and pulled back on his controls in an effort to avoid collision. The A-26 pilot pushed his controls forward attempting to pass under the DC-3. However, approximately one second after each pilot saw the other aircraft the collision occurred.

Initial impact was with the vertical fin of the A-26 against the leading edge of the DC-3's left wing at a point slightly in-board from the landing light. The fin progressed along the leading edge until it struck the left engine nacelle, tearing loose that engine. The left engine then moved sufficiently to the right to allow its still rotating propeller to cut into the fuselage of the DC-3 just behind the baggage compartment door. The top four or five feet of the A-26's fin and rudder were broken off and parts of these also struck the DC-3 fuselage causing other holes. The right propeller of the DC-3 severed the A-26 fuselage forward of the empennage. The A-26 rolled to an inverted position and at an altitude of about 900 feet its

pilot successfully bailed out after ordering a gunner who was riding forward to do likewise. This gunner, however, did not or was not able to bail out and was killed in the crash. The tail gunner was struck by a propeller of the DC-3 and was probably killed at that time.

At the moment of impact the DC-3 pilot was thrown against the left side of the cockpit and was temporarily stunned. However, he was able to maintain control of the aircraft by gliding steeply and shortly discovered that no power was available inasmuch as the left engine had fallen from the aircraft and the propeller blades had been torn from the right engine. The aircraft continued in a sharp glide toward an open area and was landed with flaps and wheels up in a cotton field. Near the end of the landing run it ground looped about 170° to the right and the right engine fell from the aircraft.

Investigation

Close scrutiny of the wreckage of both aircraft indicated that the planes collided while on approximately right angled flight paths with the A-26 slightly lower than the DC-3 and impact being made from the left of the latter aircraft. The propellers of the A-26, although badly damaged, bore no marks from the collision indicating that the A-26 was a few feet below the DC-3. The high fin and rudder of the A-26 made the initial impact and the nature of the subsequent damage confirms their relative position and flight paths at the time of the accident. The testimony of the pilots, passengers and ground witnesses as to the manner of collision entirely substantiated the results of the investigation.

Analysis of the weather in the vicinity and at the time of the collision indicated that broken clouds existed with bases between 4000

and 5000 feet above the surface and with high broken clouds above. The visibility was 15 miles or more at the surface and a light easterly wind prevailed. Information from pilots who had flown near the scene of the accident at about the time it occurred indicated that haze aloft reduced the visibility to an estimated six miles.

Discussion

Capt. G. D. Davis, pilot of the Eastern Air Line DC-3, testified that the reason for his deviation from the airway in the vicinity of Florence was to avoid the heavy military traffic close to Florence Army Air Field. While he acted well within his jurisdiction in leaving the airway in order to avoid an area which in his judgment gave reasonable appearance of containing hazardous air traffic*, it should have been apparent to him that, in so doing, he passed through a region in which military pilots would not have anticipated his flight. In order to reach the restricted area northwest of Florence it was necessary for Army aircraft to fly through the region which Captain Davis chose in deviating from the airway.

Inasmuch as the DC-3 was maintaining a straight course and had the A-26 on its left and since the A-26 was so maneuvering as eventually to intersect the flight path of the DC-3, the Eastern Air Line aircraft possessed the right-of-way. However, application of the rule of right-of-way is premised entirely upon the condition that the pilots concerned can "see and be seen" and are exercising sufficient vigilance so that its application becomes practicable. Where neither pilot is aware of the presence of the other aircraft, the rule of right-of-way is inapplicable.

* CAR Part 61.731. "Deviation from airway. No scheduled air carrier aircraft shall deviate from its prescribed airway, or, if there be no airway, from an area between two lines parallel to and 5 miles on either side of the center of the authorized route, except when operating in accordance with instructions issued by a certificated air-traffic control-tower operator or when circumstances render such deviation necessary as a safety measure. Any deviation of more than 25 miles on either side of the center line of the prescribed airway or authorized route shall be explained by the pilot in a written report to the Administrator of Civil Aeronautics. Such report shall be made within 7 days after the completion of the flight."

Testimony of Captain Davis further indicated that he had experience with military pilots which indicated that particular care was necessary in the vicinity of army installations. His apprehensions in this respect demanded that the portion of his flight near Florence Army Air Field should have been conducted with more than ordinary vigilance. Regulations prescribing "right-of-way" do not relieve a pilot of the responsibility of exercising sufficient caution to guarantee the safe conduct of the flight as far as is reasonably possible.

One minute before the collision occurred, the A-26 was less than six miles from the DC-3 and at a relative bearing of approximately 25 degrees left of the longitudinal axis of the latter aircraft. A half minute prior to the collision the two aircraft were approximately two and three-quarters miles apart with the A-26 at a relative bearing of less than 40 degrees from the DC-3. The A-26, therefore remained until the time of the accident within the forward 180 degrees of the DC-3 and at no time was in such a location with respect to the airline pilots as would have required the exercise of undue caution beyond the azimuth of reference normally scanned in searching for possibly hazardous air traffic.

Inasmuch as contact conditions prevailed, both pilots should have been aware that traffic could reasonably be expected at any altitude at any time during the course of the flight. Both pilots were operating under contact clearances and understood that the only traffic separation possible was provided by their own vigilance and proper flying technique.

Although in a prolonged turn, the A-26 for at least one minute prior to the collision remained in such an attitude and direction of flight as would have made the DC-3 clearly visible to him had he been attentive to other traffic. For the last thirty seconds of the A-26's turn, the DC-3 was almost directly ahead of the Army pilot and the only possible reason for

failing to see the other aircraft in time to avoid collision was the pre-occupation of the A-26 pilot within the cockpit and his lack of attentiveness to other air traffic.

Inasmuch as the A-26 pilot was maneuvering in an area not designated or in any manner reserved for such flight, he had no reason to expect that no other traffic would be present within that area. The responsibility of the Army pilot was unmistakable in that he should have been sufficiently vigilant regardless of the nature of his mission to avoid all other aircraft in the vicinity of his flight.

Under the conditions resulting from the collision, Captain Davis is to be commended for the high type of professional airmanship he displayed in safely landing the badly damaged aircraft.

Findings

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

1. The air carrier, its aircraft and crew were properly certificated for the flight.
2. The pilot of the DC-3 aircraft had deviated from the airway in the vicinity of Florence and was approximately 8 miles off the airway at the time of the accident.
3. The DC-3 having the A-26 on its left, possessed the right-of-way.
4. The A-26 was engaged in practice maneuvers in an area not designated or reserved for such practice.
5. Both aircraft were being operated under contact flight clearances.
6. Contact conditions prevailed at the time of the accident.
7. Both aircraft remained in such positions relative to each other as would have enabled each pilot involved to see the other aircraft for at least one minute prior to collision.
8. Neither pilot was aware of the presence of the other aircraft until approximately one second prior to impact.

Probable Cause

The Board determines that the probable cause of this accident was the lack of vigilance on the part of the pilots of both aircraft resulting in the failure of each pilot to see the other aircraft in time to avoid collision.

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.

Note This report supersedes the report of the same title adopted November 30, 1945.

SUPPLEMENTAL DATA

Air Carrier

At the time of the accident Eastern Air Lines, Inc., a Delaware corporation with headquarters in New York City, was operating as an air carrier 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 corporation to fly persons, property and mail between various points in the United States, including Washington, D. C., and Columbia, S. C.

Civil Aircraft

Aircraft NC 25647, a Douglas DC3, was purchased by Eastern Air Lines on June 8, 1940. It had been flown approximately 21,154 hours of which slightly more than 6000 had been since the last overhaul. The engines were Wright Cyclone G202A with total times of 8,163 and 11,662 hours for left and right respectively and 525 hours each since the last overhaul. The aircraft had been flown approximately 23 hours since the last check. At the time of departure from Washington the total weight was under that permissible and this load was disposed within acceptable limits relative to the center of gravity of the aircraft. The aircraft was properly certificated.

Military Aircraft

The A-26, Army serial No. 44-35553, was a high performance, twin-engined plane. Military records indicate that it was in an airworthy condition.

Flight Personnel of the DC3

The crew of the DC3 consisted of Captain Gaston D. Davis, age 35, of Miami, Fla., First Officer Norman L. Martindale, age 25, of Coral Gables, Fla., and Flight attendants Enoch Mather and Peggy Avant. The captain and first officer were properly certificated and qualified for the duties of this flight.

Personnel of the A-26

First Lieutenant Stephen G. Jones, age 24, a rated military pilot assigned to the USAF Base at Florence, S. C., had flown about 1400 hours of which some 300 had been in A-26 aircraft. He held a commercial pilot certificate issued by the Civil Aeronautics Administration. Lieutenant Jones was accompanied by two enlisted crew members.