

CIVIL AERONAUTICS BOARD

ACCIDENT INVESTIGATION REPORT

Adopted: February 1, 1946

Released: February 7, 1946

TRANSCONTINENTAL AND WESTERN AIR DC3 - BOEING A75N1 TRAINING PLANE
NEAR CHICAGO, ILL. - SEPTEMBER 26, 1945

An air collision between TWA's Flight 47, en route from Chicago to Kansas City, and a privately-owned Boeing trainer on a local flight approximately 7 miles southwest of the Chicago Municipal Airport on September 26, 1945, resulted in destruction of the Boeing and fatal injuries to its pilot and passenger. Extensive damage to the DC3's right wing was sustained in the collision but the aircraft was landed at the Chicago Municipal Airport without further damage and without injury to either occupant.

TWA's Flight 47 of September 26, 1945, departed from Chicago for Kansas City at 1312 GMT* on a scheduled cargo run without passengers. It was given an instrument clearance to cruise at 4000 feet to Kansas City maintaining 2000 feet to Yorkville, Illinois.

The Boeing pilot, occupying the rear seat, had taken off with a passenger from the Ravenswood, Illinois, Airport (about 10 miles north of the scene of the accident) at approximately 1230. After two practice landings he left the vicinity of the airport.

The collision of the two aircraft occurred about 1317 after Flight 47 had reached its 2000-foot altitude (1300 feet above the 700-foot terrain) and was proceeding westerly on the airway to Kansas City. The Boeing was headed south. The upper right wing of the Boeing was destroyed by the right wing of the airliner and the Boeing fell almost vertically to the ground. Both occupants were killed. Apparently neither attempted to jump although both were equipped with parachutes. Despite extensive damage to the leading edge of its right wing the DC3 was landed at the Chicago Municipal Airport without further damage and without injury to either occupant.

Examination of the aircraft revealed that the right upper wing of the Boeing had disintegrated before impact with the ground. The interplane strut fittings from both spars of this wing were found imbedded in the leading edge of the DC3's right wing. The top of the Boeing rudder and much of the fabric from the top of the upper right wing were also

* All time referred to herein is Central War and is based on the 24-hour clock.

found entangled in the broken leading edge of the DC3's right wing. Nothing was found to indicate malfunctioning of either plane prior to the collision.

Several persons who saw the two planes just before they collided testified that both were in straight, level flight, the airliner heading west and the Boeing heading south. They stated they could see the planes distinctly although there was a haze and the sky was overcast.

Captain Smith, who was piloting from the left seat, stated that after he leveled off at 2000 feet indicated altitude, he tuned the radio to Joliet in anticipation of shortly going on instruments and that his attention was divided equally inside and outside the cockpit. They had just crossed the southwest leg of the Chicago range and were on a heading of 260° when the First Officer yelled, "Look out!" The Captain said he immediately started a left turn because he felt that any danger would be coming from the First Officer's side on the right. At that time he caught a glimpse of the other plane at the instant of impact. First Officer Reier stated that he had been looking at ground objects and that when he first saw the other aircraft it was approaching from his right at a 45° angle in a diving attitude. He said he called out and as the Captain lifted the right wing of the DC3 the other plane passed beneath it and he heard the crash almost simultaneously. Both Smith and Reier stated that the weather was hazy with visibility 2 - 4 miles, variable, and that ground objects were plainly visible. Neither would estimate the ceiling although both stated they were beneath it at their altitude of 1300 feet above the ground (2000 feet indicated).

The nearest weather reporting station to the scene of the accident was at the Chicago Municipal Airport, 7 miles northeast. At that station the ceiling was unlimited, high overcast, thin scattered clouds at 1200 feet, visibility 1½ miles and light smoke. It is known that the amount of stratus clouds increased to the southwest and it was overcast at the scene of the accident; thus pilot vision could not have been impaired by the sun. It is estimated from all information available that the ceiling was 1500 to 2000 feet.

The wind was from the east-southeast which would carry smoke into the area from nearby industrial sections. Stratus clouds were located at the base of a temperature inversion. As smoke would tend to accumulate in the upper portion of the layer below this inversion it is highly probable that horizontal visibility decreased with elevation. Although no accurate estimation of the visibility at 1300 feet can be given, it must have been considerably less than at ground level.

CONCLUSIONS AND FINDINGS

This accident occurred about 7 miles southwest of the Chicago Municipal Airport and within the 10-mile approach zone. Civil Air Regulations require that in such an area contact flight be conducted at not less than

500 feet below the base of an overcast. In this instance it could be determined how far the two aircraft were below the base of the overcast.

From the reported attitude of the two aircraft shortly before the collision and from the manner in which they came together, it is concluded that the Boeing pilot saw the DC3 and started a diving left turn in an effort to avoid it. As the two aircraft were on intersecting courses with the Boeing to the right of the airliner, the training plane had right-of-way according to Civil Air Regulations. However, this did not relieve its pilot of his responsibility to be alert to other traffic. Neither of the DC3 pilots was sufficiently alert to other traffic as evidenced by their testimony that the Captain was tuning the radio and the First Officer was watching ground objects just prior to the collision.

Based on the evidence acquired during the investigation and hearing the Board finds that:

1. Both aircraft and all three pilots were properly certificated.
2. A haze prevailed which reduced horizontal visibility with increase of altitude.
3. None of the three pilots was sufficiently alert to other traffic.
4. The two aircraft were on intersecting courses and the Boeing, to the right of the DC3, had right-of-way according to Civil Air Regulations.
5. Just before the collision the Boeing pilot attempted to avoid the airliner by altering his flight path downward and to the left.
6. Almost simultaneous with the collision the DC3 pilot attempted to avoid the other plane by turning to the left.

PROBABLE CAUSE

Upon the basis of the foregoing the Board determines that the probable cause of this accident was lack of vigilance on the part of the pilots of both aircraft. Reduced horizontal visibility may have been a contributing factor.

BY THE CIVIL AERONAUTICS BOARD:

/s/ L. WELCH FOGUE

/s/ HARLEE BRANCH

/s/ OSWALD RYAN

/s/ JOSH LEE

SUPPLEMENTAL DATA

Investigation and Hearing

The Civil Aeronautics Board received notification at 1330 and an investigation was initiated immediately by the Senior Air Safety Investigator in charge of the Board's Chicago Office, in accordance with Section 702 (a) (2) of the Civil Aeronautics Act of 1938, as amended.

In connection with the investigation the Board ordered a Public Hearing which was held at Chicago, Illinois, on October 5, 1945. The Chief, Investigation Division, Safety Bureau of the Board, served as Presiding Officer and other members of the Safety Bureau staff participated.

Air Carrier

Transcontinental and Western Air, Inc., a Delaware corporation with headquarters in Kansas City, Missouri, held a certificate of convenience and necessity and an air carrier operating certificate, both issued pursuant to the Civil Aeronautics Act of 1938, as amended. Both certificates were currently effective and authorized the carrier to transport passengers, mail and express between various points including Chicago and Kansas City.

Flight Personnel of DC3

Captain L. W. Smith and First Officer G. W. Reier comprised the crew of Flight 47. Both were properly certificated for the flight involved.

Airliner

NC 19939, a Douglas DC3, serial No. 4992, was manufactured by Douglas Aircraft Company and was purchased by TWA from the Army on December 30, 1944. It was powered by two Wright Cyclone G202A engines equipped with Hamilton Standard propellers. Total time on the aircraft was slightly over 8000 hours and it was currently certificated as airworthy. At the time of departure from Chicago the total weight was 22,771 lbs., well below that allowable. This load was distributed properly.

Training Aircraft

NC 51445, a Boeing A75N1 (military designation PT-17), was owned by the Jefferson Park Flying Club, Inc., and was registered in the name of Ernest J. Kranz, Secretary-Treasurer of the Club. Manufactured for the Army in October 1941, it was purchased by the Jefferson Park Flying Club from the Defense Plant Corporation in July 1945, and was currently certificated as airworthy. This aircraft had been flown approximately 3176 hours including 1367 since the last major overhaul.

Pilot of Boeing

Frank Hodera, age 31, held a private certificate and had flown approximately 207 hours. He was a member of the Jefferson Park Flying Club and was authorized to fly the Club's aircraft. He carried as passenger Herman Albert Weber who was not certificated as an airman.