

## CIVIL AERONAUTICS BOARD

**ACCIDENT INVESTIGATION REPORT**

Adopted: August 16, 1948

Released: August 17, 1948

**TRANSCONTINENTAL & WESTERN AIR, INC.—NEW CASTLE, DELAWARE—  
NOVEMBER 18, 1947****The Accident**

At approximately 1300, <sup>h</sup> November 18, 1947 a Lockheed Constellation, NC-86507, crashed and burned at the New Castle County Airport, New Castle, Delaware. The aircraft was being flown on a training flight by Transcontinental & Western Air, Inc. The flight crew of four and a CAA inspector, the only occupants, were killed. The aircraft was destroyed.

**History of the Flight**

NC-86507 took off from the New Castle County Airport at 1106, November 18, 1947. Captain Francis Winkler, company check pilot, was in command and making the flight for the purpose of giving TWA Captains Henry Christensen and Virgil Kennedy their 6 months instrument check. Also on board was Herbert M. Dowsett, a CAA air carrier inspector, whose purpose was to observe the manner in which the instrument check flight was conducted by Captain Winkler. Richard deCampo rode as flight engineer.

At 1240 the flight called the New Castle Tower and asked to be cleared for an instrument approach to runway one. The flight advised that they would fly low over the field on their first approach, and that they would then circle and land. The approach was made, and the aircraft flew low over the field to the immediate right of runway one. After passing the north end of the runway, a climbing left turn was made to an altitude of 400 to 500 feet. The aircraft circled at that altitude until approximately one mile west of the south end of runway one, then it started a gliding left turn toward the field. One-half mile south of the airport the turn was completed, and the aircraft flew a straight course on final approach toward runway one for landing. This last turn onto final approach was completed at an altitude of 200 to 300 feet. The landing gear was down, but the flaps were not extended.

The descent on final approach continued normally until the aircraft had reached an altitude of approximately 50 feet above the ground, at which time it was 500 to 1,000 feet from the

approach end of runway one. Then, the aircraft was observed to assume a nose-high attitude and to descend more rapidly. First contact with the ground was made 130 feet from the approach end of runway one, and 22 feet in front of a 5-foot embankment. The top of this embankment was level with the runway. Since the embankment was uniformly covered with sod, it was not discernible from the air.

The extreme loads which were imposed upon the aircraft structure as it rolled into and over the rising embankment immediately after it had settled to the ground caused considerable damage to the landing gear, fuselage, and wings. Forced back into the air by the rise of the embankment, the airplane landed for the second time on the runway, skidding forward 1,270 feet. The right wing was torn from the fuselage as the aircraft turned over to an inverted position. Fuel spilled from ruptured gasoline tanks ignited, and the wreckage burst into flames.

**Investigation**

The main part of the wreckage, consisting of the fuselage, the left wing with engines Nos. 1 and 2 still attached, and the empennage, came to rest 1,400 feet from the initial point of impact and 200 feet to the right of runway one. The right wing which had broken from the fuselage as the aircraft turned over into an inverted position was located 100 feet forward and slightly to the left of the main body of the wreckage. Engine No. 4 and the right main landing gear were attached to the right wing. Engine No. 3 was found 50 feet forward from the main body of the wreckage.

The left wing, which remained attached to the fuselage, was broken in three places. The fuel tank area and the area where the landing gear attached were completely destroyed by fire. The right wing from the front spar forward and from the No. 4 nacelle to the tip had suffered an internal explosion, all ribs in that section being deformed in an outboard direction. This explosion resulted from gasoline vapor which accumulated in the wing panel after impact. The inboard main tank area of the wing was largely consumed by fire.

All times noted in this report are Eastern Standard and based on the 24-hour clock.

Except for the fabric which was burned from the control surfaces, the empennage was relatively undamaged by fire. The vertical fins and rudders were crushed as a result of the airplane turning over to an inverted position. The forward part of the fuselage, including the cockpit, was almost completely destroyed by fire, and the entire structure was twisted. A break in the fuselage occurred where the empennage attached.

The left main landing gear oleo strut and the drag strut mechanism were pulled completely from the airplane. The presence of a large amount of hydraulic fluid on the ground by the embankment indicated that this failure of the left gear occurred when the aircraft struck the embankment. As stated above, the right main landing gear was found with the right wing. The outboard side of the fulcrum was bent downward approximately 30 degrees, and the side braces though not broken were severely bent. The drag strut mechanism and retract strut, however, were still intact and in their proper position. Though badly damaged, the nose gear remained attached to its mounting.

Wing flaps were found up. No determination could be made of the position of any of the cockpit controls since they were almost entirely destroyed by fire.

The aileron boost system was "full on" prior to the time of impact. Positions of the booster cylinders, however, had been changed by impact forces resulting from the crash. Except for fire damage, the aileron booster cylinders were in a satisfactory condition. The elevator booster mechanism was intact and was "on" at the time of impact. It was removed from the airplane, bench-tested, and found capable of normal operation. The rudder boost mechanism was also found "on" and was in a satisfactory condition.

With the exception of No. 3, the engines were largely destroyed by impact and fire. The examination of what remained of the engines revealed no indications of any failure prior to the time of the accident.

Company records showed that all three of the TWA captains had served satisfactorily since their date of employment. Captain Francis Winkler, age 28, had been employed by the company in November of 1942. He had a total of 4,431 flying hours, 2,518 of which were in four-engine aircraft, and 736 hours of which were in Constellations. Captain Henry Christensen, age 33, was employed by the company in May of 1940. He had logged a total of 7,680 flying hours, 379 of which were in four-engine aircraft, and 195 hours of which were in Constellations. Captain Virgil Kennedy, age 33, was employed by the company in May of 1942. He had a total of 5,790 flying hours, 257 of which were in four-engine aircraft, and 255 hours of which were in Constellations.

Captains Winkler, Christensen, and Kennedy, all held effective airline transport pilot ratings.

Herbert M. Dowsett, the CAA air carrier inspector, had served in the United States Navy as a naval aviator. He had accumulated approximately 806 flying hours in four-engine aircraft. Mr. Dowsett had completed the training offered in the CAA standardization school located at Oklahoma City, Oklahoma. He was not checked out as pilot in a Constellation aircraft, however, as stated above, Mr. Dowsett was aboard only in the capacity of an observer. His purpose was to observe the manner in which the company check pilot, Captain Francis Winkler, conducted a 6-months instrument check, and he occupied no position of command. Inspector Dowsett held an effective commercial pilot rating.

The positions of bodies as found in the wreckage indicated that Captain Kennedy occupied the left seat, and Captain Christensen the right. Inspector Dowsett's body was found on the left side of the cockpit behind the pilot, and Captain Winkler's body was found on the right side of the cockpit behind the flight engineer.

Weather at the time of the accident was clear and the wind was north from 10 miles per hour. Accordingly, weather has not been considered a factor in this accident.

## DISCUSSION

Since no mechanical difficulty was reported by the flight or observed from the ground, and since no sign of any maloperation was found during the course of the investigation, it is concluded that this accident did not result from any mechanical failure. All available evidence leads to the conclusion that the airplane struck the ground short of the runway because an error in judgment was made in accomplishing the landing approach. The airplane landed not over the first third of the runway, but before it reached the end of the runway. The nose-high attitude and the rapid rate of descent immediately before the crash, as observed by several witnesses, indicated this to be true.

Runway one at the New Castle County Airport is 7,000 feet long, sufficient for a safe approach and landing in the Constellation without the use of flaps. Because a higher landing speed results when the flaps are not extended, a pilot, to insure adequate stopping distance, normally concentrates on landing as near the approach end of the runway as possible. This was probably true in this case. Captain Winkler was stationed at the New Castle County Airport, and it is assumed that he was aware of the embankment on the approach to runway one, however, Captains Christensen and Kennedy, and Inspector Dowsett may not have realized that it existed.

It is, of course, impossible to determine what the actual airspeed was immediately prior to the time that the airplane struck the ground. However, since a "no flaps" landing was being attempted, a higher airspeed was required than would ordinarily have been used in a standard approach. It cannot be known what actually transpired in the cockpit immediately before the crash, the error in judgment may have involved not only airspeed, but also glide angle and application of power. In any event, the airplane was actually landed 130 feet short of the runway.

**Findings**

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

1. The carrier, aircraft, and crew were properly certificated.
2. The aircraft was in an airworthy condition prior to the time of the accident.
3. The flight was being made for training purposes, and for the accomplishment of a 6-months instrument check.
4. The three company pilots on board were qualified to fly a Lockheed Constellation aircraft. The CAA inspector on board rode only in the capacity of an observer.
5. The airplane was flown on a landing approach to runway one at the New Castle County Airport, New Castle, Delaware, without the use of the landing flaps.

- 19882

6 Five hundred to 1,000 feet before crossing the approach end of runway one the airplane was observed to assume a nose-high attitude, and to increase its rate of descent.

7 The airplane struck the ground 130 feet from the approach end of the runway and 22 feet in front of a 5-foot embankment.

8 Loads imposed upon the aircraft structure immediately after settling to the ground and as it struck the 5-foot embankment caused considerable damage to the landing gear, fuselage, and wings

9. The aircraft was forced into the air by rolling over the embankment, and landed for the second time on runway one after which it skidded forward 1,270 feet, turned over to an inverted position, and burst into flames.

**Probable Cause**

The Board determines that the probable cause of this accident was the inadvertent landing of the aircraft short of the runway.

BY THE CIVIL AERONAUTICS BOARD

/s/ JOSEPH J O'CONNELL, JR  
 /s/ JOSH LEE  
 /s/ HAROLD A JONES  
 /s/ RUSSELL B ADAMS

Oswald Ryan, Vice Chairman, did not participate.

# Supplemental Data

## Investigation and Hearing

The Civil Aeronautics Board received notification of the accident at approximately 1335, November 18, 1947, by telephone from TWA Operations at New Castle, Delaware. An investigation was begun immediately in accordance with the provisions of Section 702 (a) (2) of the Civil Aeronautics Act of 1938, as amended. As a part of the investigation a hearing was held December 3, 1947, at Wilmington, Delaware.

## Air Carrier

Transcontinental & Western Air, Inc., incorporated under the laws of the State of Delaware, holds certificates issued by the Civil Aeronautics Board for the transportation by air of

passengers, cargo, and mail over both domestic and international routes. The operation during which this accident occurred was conducted by the International Division of the company, the headquarters of which are in New York, New York.

## The Aircraft

NC-86507 was a Lockheed Constellation, Model 049-46-26, Lockheed serial No. 2028. It had been flown a total of 3,256 hours. The airplane was equipped with Curtiss-Wright R-3350 engines, Model 745-C18 DA-3. These engines had a total of 44 hours since their last overhaul. All records pertaining to the maintenance of the aircraft were examined and found to be complete and indicated the aircraft to be entirely airworthy.

(1)