

AIRCRAFT ACCIDENT REPORT

ADOPTED: July 9, 1962

RELEASED: July 13, 1962

DELTA AIR LINES, INC., DC-7B, N 4882C,
IMESON AIRPORT, JACKSONVILLE, FLORIDA,
DECEMBER 2, 1961

SYNOPSIS

Delta's Flight No. 744 of December 2, 1961, a DC-7B, N 4882C, descended into trees about eight-tenths of a mile short of runway 30 during a surveillance radar approach to that runway at Imeson Airport, Jacksonville, Florida, on that date at 0938. The aircraft was substantially damaged but was climbed and circled to land on runway 9. No. 2 propeller was feathered after striking the trees. A portion of the left flap was torn off and remained in the trees. There were no injuries to any of the 15 passengers or to any of the five crew members.

Evidence indicates that this accident occurred because of the pilot's improper execution of an instrument approach.

Investigation

Flight 744 was scheduled from Miami, Florida, to Cincinnati, Ohio, with stops at West Palm Beach, Florida; Jacksonville, Florida; and Atlanta, Georgia. The Captain was Hiram Cassidy Sumrall, the First Officer was Lyman W. Higgs, Jr., the Second Officer was Robert Andrew Herchek, and there were two stewardesses. Departure from Miami was substantially on time, at 0735 ^{1/}, as was departure from West Palm Beach at 0825. At that time the flight was cleared by Jacksonville Center to the Atlantic Intersection via Victor 3 east to maintain 11,000 feet and to descend to 4,000 feet after passing Daytona Beach.

At 0928 the flight contacted Jacksonville Approach Control while over Atlantic Intersection in the holding pattern at 4,000 feet and was given "wind calm; altimeter 30.36," and was cleared to Shiloh Intersection, to maintain 4,000 feet, and to depart Shiloh on a heading of 270 degrees for a radar vector to the ILS approach course for runway 5. Jacksonville weather was given by approach control as "clear; visibility three miles; ground fog and smoke; wind calm."

At this time the flight offered to accept radar vectoring for a straight-in approach to runway 30 to expedite its landing. As the approach controller was occupied with other duties, departure control agreed to handle the Airport Surveillance Radar (ASR) approach. First Officer Higgs made the approach occupying the right seat. The flight was instructed to turn to a heading of 340 degrees and descend to 1,500 feet. The flight complied, maintaining a speed of 150 knots. The controller gave headings of 340 and then 320 degrees to bring

^{1/} All times herein are Eastern Standard based on the 24-hour clock.

the flight to the extended centerline of runway 30. As the flight reached specific distances from the runway it was advised of the recommended altitudes. These were 5 miles - 1,500 feet; 4 miles - 1,200 feet; 3 miles - 900 feet; and 2 miles - 600 feet. These recommendations were received. After the flight passed the three-mile point, the following advisory was given by the radar controller: "Drifting slightly left of course, right to 305, 305, two miles from end of runway, altitude should be 600 feet. Still right 2/ of course, right to 310. Considerably left of course. Right to 315. Further right to 320. Considerably left of course and 1-1/2 miles from end of runway, approaching ASR minimums, you should have runway in sight at this time."

The ASR minimums for this approach are 400 feet altitude and one mile visibility. According to crew testimony, the flight was slightly above the recommended altitudes up to and including the two-mile position. At approximately this point dense smoke from a paper mill, mixed with ground fog, was encountered. The crew testified that they entered this smoke and fog at an altitude of about 680 feet.

The aircraft was not leveled off at the ASR minimum altitude and continued descending prematurely until the tops of trees were struck. The captain took control immediately before striking the trees, applied full power, and pulled the aircraft up. There were no injuries to any of the 20 occupants. A portion of the left flap was torn loose by impact and remained in the treetops. Loss of power and increase in oil temperature of No. 2 engine was followed by vibration and prompted feathering of the propeller. The pilot circled the airport visually and landed on runway 9. The crew requested and received from the tower the altimeter setting of 30.36, the same setting as given earlier during the approach.

The trees at point of impact are approximately 4,000 feet from the approach end of runway 30 and approximately 1,300 feet to the left of the extended centerline of that runway. The heading from the point of impact to the approach end of runway 30 is 320 degrees. The published altitude of the airport is 52 feet m.s.l.; the altitude of the approach end of runway 30 is 37 feet m.s.l.; and the treetops were struck at a point 56 feet m.s.l., or 19 feet above the altitude of the approach end of the runway. A line of trees slightly higher than those struck extended across the direct approach to runway 30 about 1,000 feet farther on.

Testimony by the flight crew indicated that:

- (a) They saw portions of the airport shortly before entering an area of dense smoke and fog across the approach path.
- (b) They entered this smoke at about 600-700 feet altitude at a rate of descent of about 600 feet per minute.
- (c) The two altimeters were not cross-checked during the approach, as required by company procedure.
- (d) The captain was not looking at his altimeter because he expected to break out into the clear at any second. The first officer and the flight engineer could not recall any altimeter readings.

2/ The controller testified that the word "right" should have been "left" and the crew testified that the error was not significant.

Altimeter malfunctioning was suggested by the nature of the accident and by the reported erratic behavior of the altimeters during the ferry flight of N 4882C from Jacksonville to Atlanta on December 3, 1961. Accordingly, this possibility was explored and it was found that none of the six pilot log sheets preceding this flight carried any suggestion of altimeter trouble and both altimeters indicated properly upon leaving Miami and upon arriving at and leaving West Palm Beach. In addition, several tests conducted after the accident revealed that both altimeters were functioning within acceptable tolerances.

Both of the aircraft's autosyn compasses were tested following the accident and neither showed any significant irregularity. The maintenance of the aircraft had been satisfactory, according to company records.

The possibility of radar malfunctioning was raised and this matter was also explored. Approximately three hours after the accident, and in accordance with established procedure, the FAA flight-checked the Jacksonville ASR facility. Results indicated that the radar functioned properly, well within tolerances on both azimuth and range (direction and distance) during four test approaches, three to runway 30 and one to runway 9. No other incoming flight at or about the time of this accident reported any difficulty with any communication or navigational facility.

About seven minutes before the accident the U. S. Weather Bureau Station at the airport transmitted by Tel Autograph to the control tower the official observation of clear with three miles visibility, ground fog and smoke. Appended to this observation was a remark indicating that the visibility to the southeast was one mile. This remark was not given to the flight by the tower and existing procedures did not make it mandatory for the tower to do so.

Testimony by Delta's chief pilot raised the question as to whether the terms "radar vector approach" and "airport surveillance approach" are synonymous. Testimony of tower personnel indicates that they consider these terms to be synonymous and are so used by both Air Traffic Control personnel and pilots.

At the time of the accident, the surface wind was only one knot from the northeast and there was no reported turbulence or unusual winds at approach altitudes.

The paper mill, which produced the dense smoke, is located about one mile northeast of the airport. It has been there for many years and its chronic heavy smoke has caused a continuing problem depending upon and varying with the wind. This situation is well known to pilots using Imeson Airport. Both the captain and the first officer of Flight 744 had had years of experience operating into Imeson Airport at Jacksonville.

Immediately following this accident, Delta Air Lines suspended Captain Sumrall and First Officer Higgs from flight status for 30 days. The FAA later suspended the captain from flight status for 60 days and the first officer for 30 days, making the company disciplinary action retroactively applicable to both.

Analysis

Investigation of this accident revealed no defect in the aircraft or in any of its components or in any of the ground services and equipment utilized during

the approach. The responsibility for the accident must therefore be in the manner in which the aircraft was flown.

Apparently both pilots ignored the altimeters after the aircraft entered the smoke. The altimeter is the only source of altitude information available during this type of instrument approach because the radar controller does not have the means of determining altitude information

Not only was the aircraft not leveled off at the 400-foot minimum flight level but its rate of descent must have been increased. There is no other way to account for the great loss of altitude in such a relatively short distance. According to the captain, when two miles from the end of the runway and at an altitude of about 680 feet the smoke area was entered. The distance from that point to the point of impact, as flown, is about 8,200 feet. At the testified speed of 150 knots, an average rate of descent of about 1,200 feet per minute must have prevailed. The aircraft was also markedly to the left of course just before impact despite continuing advisories to that effect.

The Board believes that the presence of smoke in the impact area may not be considered as extenuating because descent through the smoke was continued unnecessarily. The Board further believes that there was no misunderstanding by the crew as to the type of approach they undertook.

Probable Cause

The Board determines that the probable cause of this accident was the pilot's improper execution of an instrument approach.

BY THE CIVIL AERONAUTICS BOARD:

/s/ ALAN S. BOYD
Chairman

/s/ ROBERT T. MURPHY
Vice Chairman

/s/ CHAN GURNEY
Member

/s/ G. JOSEPH MINETTI
Member

/s/ WHITNEY GILLILLAND
Member

S U P P L E M E N T A L D A T A

Investigation and Hearing

The Civil Aeronautics Board was notified very shortly after occurrence. Investigation was immediately started in accordance with the provisions of Section 702 (a)(2), of the Federal Aviation Act of 1958. The Board ordered that depositions be taken and this was done at Miami, Florida, January 29, 1962, and at Jacksonville, Florida, January 31, 1962.

Air Carrier

Delta Air Lines, Inc , has its main office at Atlanta, Georgia. The company operates as a scheduled air carrier under a currently effective certificate of public convenience and necessity issued by the Civil Aeronautics Board and an operating certificate issued by the Federal Aviation Agency. These certificates allow the company to transport persons, property and mail between various points including Miami, West Palm Beach and Jacksonville - all in Florida, and Atlanta, Georgia.

Flight Personnel

Captain Hiram Cassedy Sumrall, age 44, had flown a total of 17,195 hours, of which 6,852 hours had been in DC-7's. He held all requisite certificates and his last medical examination (first-class) was current, having been passed on June 29, 1961. He was current on line and instrument checks.

First Officer Lyman W Higgs, Jr., age 41, had flown a total of 12,644 hours, of which 4,428 hours had been in DC-7's. He also held all requisite certificates and his last medical examination (first-class) was current, having been passed on January 23, 1961. He also was current on line and instrument checks.

Second Officer Robert Andrew Herchek, age 31, who was the flight engineer, held the requisite flight engineer's certificate and, additionally, held a commercial pilot's certificate with an instrument rating. He had flown 4,631 hours, of which 3,290 hours had been in DC-7's. His last physical examination (first-class) was current having been passed November 23, 1961.

The Aircraft

The aircraft was a Douglas DC-7B Serial Number 45311, N 4882C, and was owned and operated by Delta Air Lines, Inc. Its total operational time was 14,097 hours. The last major inspection was at 796 operational hours previously, and the last line maintenance at 94 operational hours previously. Records indicate that all maintenance had been current and satisfactory.