

CIVIL AERONAUTICS BOARD

AIRCRAFT ACCIDENT REPORT

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THE DELSEY CORPORATION, BEECHCRAFT, MODEL D-35,
N 2100D, ELMHURST, NEW YORK,
JULY 18, 1961

SYNOPSIS

A Beechcraft Bonanza, Model D-35, N 2100D, crashed about 1414 at Elmhurst, New York, on July 18, 1961. Its four occupants were fatally injured.

The flight was an air taxi operation between LaGuardia Airport and East Hampton, Long Island, New York. There were three passengers and a pilot aboard. Takeoff was from runway 31 at about 1412; almost immediately thereafter the pilot asked clearance from the tower to return in order to close the cabin door. Clearance to land on runway 4 was given, the pilot acknowledged, and the tower asked if emergency equipment was wanted. The pilot replied negatively.

Shortly thereafter the aircraft rolled to an inverted position and crashed steeply nosedown and burned in a vacant lot some 1,750 feet short of the approach end of runway 4.

The Board determines the probable cause of this accident was a serious diversion of the pilot's attention during crucial seconds of the final approach, resulting in loss of control at an altitude too low to effect recovery.

Investigation

The aircraft was owned by Adele C. Lamp and Bryan B. Hamblin of East Hampton, New York, and was leased to the Delsey Corporation, East Hampton, New York. This corporation was principally owned by Hilyer A. Dubois who had economic authority from the Board and a valid air taxi operating certificate issued by the Federal Aviation Agency on June 29, 1960.

The pilot was Paul A. Dubuke, age 29, who had flown a total of approximately 1,400 hours. He was properly certificated and rated for the subject flight and had flown approximately 50 hours in Beech Bonanzas. His physical examination (second class) was current and his medical certificate carried no limitations.

Prior to the departure from LaGuardia, the aircraft had been operated on a routine VFR flight from East Hampton, Long Island, New York, to LaGuardia. It had departed East Hampton at approximately 1305 with Pilot Dubuke and three other passengers. The aircraft carried approximately 35 gallons of fuel upon departure from East Hampton. Pilot Dubuke arrived at LaGuardia approximately 40 minutes later, taxied to the Marine Terminal, and parked in the area known as the Bay Ramp, where three passengers deplaned.

The aircraft remained at the ramp approximately 16 minutes and received neither service, fuel, nor maintenance. At this time three women passengers boarded, two sitting in the rear two-place seat, and the third in the righthand front seat next to the pilot. The gross weight of the aircraft was well under the maximum permissible and the center of gravity was located within prescribed limits. This aircraft has a single throwover control wheel. The righthand rudder pedals can be - and were, as far as can be determined - folded forward out of foot reach of the righthand front passenger. There were no witnesses as to which of the three women sat up front.

Tower transcripts indicate that Bonanza N 2100D called LaGuardia Ground Control at approximately 1407 for taxi clearance to runup position. The aircraft was cleared to the runup position of runway 31; however, the pilot elected to initiate takeoff from runway 31 at taxiway 7.

At approximately 1412, radio communications were established between LaGuardia tower and Bonanza N 2100D and the aircraft was cleared for takeoff. Shortly thereafter the pilot requested a right turnout. The right turn was approved and the pilot was advised to watch for traffic inbound from the northeast. Seconds after takeoff the pilot radioed the tower that he had to land and stated that he could make a 360-degree turn from his present position. The control tower issued landing clearance and asked the nature of the emergency, whereupon the pilot advised that he had an open door and stated that he could land on runway 4, if cleared. The aircraft was immediately cleared to land on runway 4.

Seconds prior to 1414, the tower asked the pilot if he wanted emergency equipment. He answered in the negative and stated that he was just going to land on runway 4 to lock the door. Clearance to land on runway 4 was again given to the aircraft and acknowledged by the pilot's "thank you." No further transmission was received from the aircraft which almost immediately rolled inverted and dove to the ground in a steep nosedown attitude and burned.

Tower personnel, who overheard the conversation regarding the open door, stated that they were able to see the aircraft with the door ajar when it made a left turn after takeoff. At least two of these persons observed the aircraft as it continued in a landing pattern for runway 4. Both stated that during the last part of the approach the aircraft went into a steep dive and crashed.

A number of persons saw the final descent and crash. Their generalized observations indicate that the aircraft initially followed what was substantially a standard pattern for landing on runway 4. Its altitude on the downwind leg, which was toward the southwest, was variously estimated as from 200 to 400 feet. At the end of the downwind leg a left turn was started. At or about the start of this turn the left wing dropped sharply, came up again, and the aircraft then seemed to wobble. Again the left wing dropped and this time it did not come up. Instead the aircraft started what appeared to be a left spin, rolled over to an inverted position and then dove nearly vertically to the ground and burned.

The LaGuardia weather immediately before and after the accident (which occurred at 1414) was:

At 1355 - Scattered clouds at 4,000 feet; visibility 7 miles
temperature 86°; dewpoint 60°; wind west at 8 knots;
altimeter setting 29.93.

At 1418 - Scattered clouds at 4,000 feet; visibility 5 miles; smoke;
temperature 88°; dewpoint 61°; wind west-southwest at 7
knots; altimeter setting 29.92.

The crash site was a vacant lot on 81st Street near Astoria Boulevard some 1,750 feet short of the approach end of runway 4 and near its extended centerline. The wreckage, which was confined to a relatively small area about the size of the aircraft itself, was virtually destroyed by impact and fire. Ground impact was along a 75-255 degree magnetic line with the forward part of the aircraft headed in the direction of 255 degrees. Gouge marks from impact were 7 feet long, 5 feet wide, and approximately 18 inches deep. The gouge marks were in the direction of 75 degrees magnetic.

The fuselage broke open in the cabin area from the top to the floor. The entire cabin area and the floor structure were completely destroyed by impact and fire. The aft part of the fuselage, with empennage attached and intact, broke off in the vicinity of station 179. The top part of the fuselage was broken about 5 feet 4 inches ahead of the leading edges of the V-tail surfaces, while the underside of the fuselage had an irregular break back to the first fuselage frame ahead of the ruddervators. The stabilizer assembly was relatively undamaged. The hinges and control cables remaining with the tail were intact with cable continuity to the movable surfaces. Tabs on the tail surfaces were in the trail position.

Both left and right wing leading edges were badly telescoped and crushed rearward to the front spar. Both ailerons were attached to the respective wings and control continuity existed. The entire nose section, including the cockpit, was telescoped into the engine. Due to the severe jamming and fire damage in this area, it was impossible to determine the cockpit trim tab settings.

Ground impact markings and wreckage examination indicate that the aircraft struck the ground in a nearly vertical inverted position. The main landing gear and nose gear were found in the "down" position. The flaps were found in the "up" position.

The cockpit area sustained such severe crushing and fire damage that only the following observations were possible:

Trottle	1/2 open
Mixture	Rich
Carb heat	Off
Primer	Off
Ignition switch	On - both
Fuel valve	Left tank
Battery master switch	On
Landing gear	Down position
Control wheel	Throwover type. Locked on left side
Clock	1406
Directional gyro	080 degrees
Radio compass	Needle at 210 degrees

Rescue personnel reported that no difficulty was encountered in removing the bodies of the three passengers, but that the pilot's seat belt had to be cut to effect removal of his body. Examination of the seat belts and attachments indicated strongly that the other three seat belts were fastened at the time of impact.

The main cabin door, located on the right side of the aircraft, was torn from the fuselage structure at the two forward hinges. The inside door latch was found to be in a vertical (unlocked) position relative to the horizontal portion of the doorframe. Examination of the upper door latch showed it to be in the unlocked position, compatible with the inside door handle position. The door was bowed outward in the area between the door pull strap and the inside door handle. The door latch and the inside and outside door handles had jammed and could not be moved. The door, as compared to the adjacent structure, was relatively intact. Examination of the latching assembly showed the push-pull rod between the side latch and the inner door handle to be bent outward in the area where the door was bowed outward by impact. The bend was at a point approximately 4 inches from the inside door handle attach point and prevented operation of the assembly. Inspection of the top and side latches disclosed normal, but not unusual, wear.

The small ventilating window on the pilot's side of the cockpit was found separated from any adjoining structure in the wreckage. Its latching handle was found in the unlocked (window open) position with the actuator portion of the handle in the 10 o'clock position. The latching mechanism functioned properly and the window was relatively undamaged although the window frame was badly deformed.

This aircraft was equipped with a stall warning horn and a stall warning light but fire and impact damage made it impossible to establish that they were operable before impact.

Investigation of the airframe failed to reveal any structural defect or condition which might have impaired the structural integrity of the aircraft, nor was anything found suggestive of mechanical difficulty with any control.

Examination of the powerplant and its accessories revealed no indication of any condition which might have caused power interruption.

A review of the aircraft and engine logbooks indicated that airworthiness had been maintained in accordance with Federal Aviation Agency regulations.

There have been other instances of the cabin door of this model aircraft coming ajar during flight. Some have been the result of taking off with the door not secured while in other cases the door has been unlatched, either purposely or accidentally, during flight. The result is that the door stays ajar by about 3 or 4 inches and is kept ajar by rather strong aerodynamic forces. Although possible, it is difficult to close the door during flight even if the accepted technique of reducing airspeed and opening the ventilating window is followed. Consequently, it has become an established procedure to land, as soon as feasible, in order to latch and secure the open door. An extremely noisy and disconcerting - even alarming - rush of air around the door edges is attendant upon this door being open, but the aircraft's flight characteristics are not noticeably changed.

The ventilating window at the pilot's left is routinely opened while on the ground, particularly during hot weather. The window is seldom opened in flight because it also causes a noisy and disconcerting rush of air.

In order to experience the flight conditions that existed during this flight (with cabin door open), a Board Air Safety Investigator participated in special flights with similar type aircraft to determine handling characteristics and the psychological effect of the door coming open in flight. These flights were conducted at the Beech Aircraft Corporation, Wichita, Kansas. In the course of these tests the Board's Investigator flew with a Beech Aircraft pilot and acted alternately as pilot and as passenger. In neither capacity was he able to close the door once it was open, nor was the Beech pilot any more successful. On the first flight the door was closed by hard slamming, but was not placed in the fully locked position. This was purposely done with the hope that the door would come open at the time of liftoff or shortly after becoming airborne. However, in this condition, the door came open upon reaching 50 m.p.h. during takeoff roll, and the takeoff was aborted.

On the second attempt, the door was closed but not completely locked. After becoming airborne, it was noted that the side latch remained fastened although the top latch was in the unlocked position which permitted an opening at the top of the door with an attendant noise of rushing air.

On subsequent flights the door was placed in the fully locked position prior to takeoff and after becoming airborne the door was intentionally opened. It was noted that the initial opening of the door was alarming and there was a level of noise from rushing air to make conversation most difficult. The trailing edge of the door remained open approximately 3 to 4 inches.

During level flight at speeds ranging from 80 m.p.h. to 120 m.p.h., several attempts were made to close the door. These attempts were unsuccessful. Additional experiments with the side window opened while skidding the aircraft at an indicated airspeed of 80 m.p.h. also proved unsuccessful. During the experiment there was no significant effect on the control of the aircraft or its handling characteristics. During test flights elsewhere in a similar aircraft, the pilot was also unable to close the door although a male passenger in the front right seat did do so after several attempts.

These tests confirm the difficulty of closing an opened door of this model aircraft during flight. At the time of being hired the pilot involved in this accident was briefed by the operator on the proper method of coping with an open door - which was to land and close it rather than attempt to close it during flight.

Analysis and Conclusions

Throughout the investigation of the accident, nothing was found to indicate or even suggest any operational defect or malfunction of the aircraft or of its powerplant or of any of its accessory equipment. Further, the weather was virtually ideal for the flight and the pilot was properly certificated and had been acceptably flight checked by his employer.

This tragedy appears to have been induced by the open cabin door. It is

clear that the pilot intended to land in order to close the door. His request for landing clearance, and his acknowledgement, in addition to the aircraft's landing gear being down, establish that intent. However, the open ventilator window suggests that he may have attempted to close the door in flight, after having been cleared to land, because with the window open the change in air-flow and pressure makes the closing of the main door somewhat less difficult.

The aircraft stalled and started to spin. The reason for the loss of control and the critically lessened airspeed, which must have preceded loss of control remain obscure. Possibly there was interference with the controls or with the pilot by one or more of the passengers. This interference could have been induced by fright caused by the noise of the open door. Possibly the pilot, without this interference, had his attention diverted in some other manner. He may have been trying to close the door which, as has been explained, is not a simple process and while so engaged allowed his speed to become dangerously low.^{1/}

Probable Cause

The Board determines the probable cause of this accident was a serious diversion of the pilot's attention during crucial seconds of the final approach, resulting in loss of control at an altitude too low to effect recovery.

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

^{1/} The flaps-up stalling speeds of the Bonanza in various turn attitudes are: zero ° bank angle, 66 m.p.h.; 30°, 71 m.p.h.; 45°, 78 m.p.h.; 60°, 93 m.p.h.; 75°, 130 m.p.h.

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

Investigation and Depositions

The Civil Aeronautics Board was notified of this accident a few minutes after occurrence. Investigation was started immediately in accordance with the provisions of the Federal Aviation Act of 1958. The Board ordered that depositions be taken and this was done at New York, N. Y., on August 3, 1961.

Pilot History

Pilot Paul A. Dubuke, age 29, possessed a currently effective FAA airman's certificate No. 1307703 with commercial privileges. His ratings included single and multiengine land. He also possessed an instrument rating. Investigation disclosed that he had accumulated a total flight time of approximately 1,400 hours. According to his employer, Pilot Dubuke reported that he had approximately 50 hours in Bonanza type aircraft, about 350 or more hours in light twin-engine aircraft and several hundred hours in the Comanche, a low-wing single-engine aircraft. Included in Dubuke's total Beechcraft Bonanza flight time were 23 hours which had been in the last 90 days. The pilot's last second-class physical examination was dated December 28, 1960. There were no limitations on his medical certificate.

Aircraft History

The aircraft was a Beechcraft Bonanza Model D-35, serial No. D-3445, identification N-2100D. It was manufactured in February 1953 and had been purchased from Grassbart Aviation, Inc., by the present owners, Bryan B. Hamblin and Adele C. Lamb of East Hampton Airport, on February 20, 1961. The plane was properly registered and certificated airworthy by the Federal Aviation Agency.

The total time on the aircraft as of July 18, 1961, was 2966:35 hours. The total time on the engine as of that date was 2059.35 hours. The engine time since overhaul was 629:35 hours, with the last 100-hours inspection on May 11, 1961, and the last periodic on February 11, 1961. The aircraft and engine time accumulated since the last 100-hours inspection was 84:35 hours.

The Operator

Investigation revealed that the operator was duly authorized to engage in air transportation, utilizing aircraft of less than 12,500 pounds maximum certificated takeoff weight in accordance with applicable provisions of the Civil Air Regulations.