

CIVIL AERONAUTICS BOARD

AIRCRAFT ACCIDENT REPORT

ADOPTED: October 11, 1960

RELEASED: October 14, 1960

CONTINENTAL CAN COMPANY, INC., B-26C, N 1502,
NEAR MARION, OHIO, JULY 1, 1959

SYNOPSIS

A Martin B-26C, N 1502, owned and operated by the Continental Can Company, Inc., crashed near Marion, Ohio, July 1, 1959, about 1752. All occupants, company pilots John R. Dunham and Donald Martin and eight company executives, were killed.

The purpose of this flight was to transport the executives from Midway Airport, Chicago, Illinois, to Baltimore, Maryland. Departure from Midway was at 1645.

When the flight was near Marion, Ohio, and shortly after it had traversed an area of pronounced thunderstorm activity, it dived violently and nearly vertically to the ground. Destruction was of such extent that it could not be determined if a structural failure occurred in flight and consequently the probable cause of this accident could not be established.

Investigation

Pilot Dunham filed an IFR flight plan for the proposed flight as follows. "Midway Airport to Baltimore via Peotone, V 144, V 44, estimated departure time 1630L, requesting 9,000 feet, proposing 225 knots TAS, with 2:30 hours ETE, and 5:30 hours of fuel on board."

Personnel of the Weather Bureau office at Midway Airport were busy during the afternoon of July 1 and cannot state definitely that they briefed the crew of this particular flight prior to departure. However, knowing the normal practices of Continental Can Company crews, they believe that a weather briefing was supplied to this crew. All eastbound briefings that afternoon called attention to the extensiveness and frequency of severe thunderstorm activity expected. Attention was drawn to all pertinent forecasts and flash advisories available. The B-26C aircraft used on this flight was equipped with weather radar, which was operable as far as can be determined.

N 1502 departed Midway Airport, Chicago, Illinois, at 1644. Taxi, takeoff, and climbout, as recalled by tower operators on duty, were routine in all respects. N 1502 was issued a clearance from Midway to the Baltimore Airport via Peotone, V 144, V 44, to maintain 5,000 feet.

1/ All times herein are eastern daylight, unless otherwise indicated, and based on the 24-hour clock.

Normal radar hand-off was effected between Midway Tower and Chicago Center. The center radar controller subsequently cleared N 1502 to climb to and maintain 9,000 feet. A position report was made over Peotone at 1655, estimating Fort Wayne at 1725. At this time the flight was cleared from the Chicago departure control frequency to the Goshen peripheral frequency. N 1502 reported over Fort Wayne at 1724 at 9,000 feet and estimated arrival time at Findlay at 1740 and was advised to contact Cleveland Center on 125.8 mcs.

Upon contacting Cleveland Center at 1733, N 1502 gave its position as over Fort Wayne at 1724, at 9,000 feet, estimating Findlay omni at 1740, with Appleton omni as the next checkpoint. The controller gave the Findlay altimeter setting as 29.87. The center's records indicate that the flight reported over Findlay omni at 1739, at 9,000 feet, estimating Appleton omni at 1754, with Zanesville omni as the next checkpoint. At this time N 1502 was advised to contact Indianapolis Center on 125.4 mcs.

At approximately 1740, N 1502 contacted Indianapolis Center and gave the following position report "1502 checked Findlay at 39, at nine thousand, estimating Appleton at 56, Zanesville, go ahead." Indianapolis Center acknowledged the position report and gave the Columbus altimeter at 29.92. N 1502 acknowledged; this was its last transmission; none of the radio contacts suggested any difficulty.

At 1752, N 1502 was observed by people on the ground to enter a near-vertical dive and crash at a point about three miles south-southeast of the Marion, Ohio, Airport. The crash site is about 15 miles to one side of the flight's planned course and the crash occurred a few minutes after the aircraft should have traversed the area.

An estimated 80 persons were contacted regarding their reported observations of N 1502 prior to the crash and 19 supplied witness statements to investigators. In consensus, these statements indicate the following.

N 1502 was first observed flying over the Marion Municipal Airport on a south-southeast heading at about 4,000 feet altitude. (How and why the aircraft descended from 9,000 feet is not known.) It was next seen over the U. S. Army Engineer Depot, Marion, Ohio, still on a south-southeast heading. The next positive observance of the aircraft was when it was turning from an easterly heading to the north. At this time the aircraft was observed to make a "short" climb and then continue the turn to a northerly heading. The aircraft maintained this northerly heading and was shortly seen to enter a dive, described as vertical. At the start of the dive the aircraft was at an altitude of approximately 4,000 feet.

Witness descriptions of the sound created by the powerplants indicate that the maximum or near maximum power was being developed by both engines throughout that portion of the flight when the aircraft altered heading from the south-southeast to the north. N 1502, gaining altitude throughout the turn, continued to climb after reaching the northerly heading. At this point power noise became less and the aircraft was observed to enter the reported vertical dive with power again applied, at or near maximum, continuing until impact.

According to local persons the weather at the time of the accident was substantially as follows:

A thunderstorm had passed through the Marion, Ohio, area an estimated 30 minutes prior to the crash. Light rain was falling at the time with light winds reported. The ceiling was estimated as 1,500 feet to 4,500 feet. There were no reports of lightning or thunder in the area at the time of the crash.

Radar observations made by the Weather Bureau at Columbus, Ohio, and Canton - Akron, Ohio, at 1700 showed a 10-mile wide belt of thunderstorms running generally from northeast to southwest just west of Marion, Ohio. Findlay, Ohio, about 35 miles northwest of Marion, had thunderstorms and rain shower activity at this time. A surface barometric pressure jump of .05 of an inch occurred at Findlay at 1318 during the passage of a thunderstorm.

A severe weather warning was issued at 1140 July 1 by the Weather Bureau's Severe Local Storm office at Kansas City. The text of this warning was as follows

"Line thunderstorms at 1200E from northeastern Indiana southward to western Kentucky and western Tennessee expected to move eastward about 25 knots intensifying during afternoon. Northern portion line more active with a few severe thunderstorms with 1/2 to 3/4 isolated one inch hail aloft isolated extreme turbulence and surface wind gusts to 50 kts isolated 60 kts expected in area 60 miles either side of a line from 30 miles northwest of Dayton, Ohio, to 25 miles north Bradford, Pennsylvania. Valid 1300E to 2100E. Isolated heavy thunderstorms expected southward along line through southern Ohio central Kentucky and western and central Tennessee as this line moves eastward during afternoon and early evening . . ."

An amendment to this warning was issued at 1225 and read as follows:

"Revise severe limits to read 1/2 to 3/4 isolated one inch hail surface and aloft isolated extreme turbulence and surface wind gusts to 55 kts isolated 65 kts valid 1330E and 2100E. Pub Fcst Issued. . . ."

The aviation area forecast issued by the Weather Bureau at Chicago at 1252 read in part as follows:

"Deepening surface low over northern Lake Michigan with cold front southward across extreme western lower Michigan - Goshen, Indiana, with front continuing eastward at 20 knots for next 12 hours. A squall line NNE-SSW across extreme northeastern Indiana with occasional ceiling 1,500 feet, sky obscured, visibility two miles, thunderstorm, rainshower, gusts to 50 knots moving out of northeastern Indiana by 1400C to 1600C."

The Weather Bureau forecast office at Cincinnati issued the following flash advisory at 1542:

"Cold front at 1700E, 50 miles SE of Ft. Wayne to near Paducah moving eastward 15-20 knots with series of squall lines east of front through southern and central Ohio, northern Kentucky, northwest West Virginia. Locally precipitation ceiling 500 feet sky obscured, visibility 1/2 mile thunderstorm heavy rain shower in front and squall lines with severe turbulence and hail. Valid until 2100E."

FAA procedures, at the time, did not require transmission of the above severe weather information to the flight on ground initiative. However, any or all of it could and would have been given to the flight on request. No such request was made.

The aircraft hit almost vertically on a heading of about 013 degrees. There was some evidence of a very brief flash fire after impact. The speed at impact was extremely high, as evidenced by the heavy portions of the aircraft imbedding themselves some eight feet in hard clay. The resulting destruction was so explosive-like that a high degree of disintegration occurred with widespread destruction of the airframe and of the powerplants. All major components of the aircraft were found at the crash site indicating that there had been no inflight loss or separation of parts. There was no physical evidence of structural failure in flight nor of control failure nor of powerplant failure, although investigation for these possibilities was thorough.

Examination of the maintenance history and records of this aircraft indicated that maintenance had been satisfactory and in full conformance with Civil Air Regulations; no significant entries were found.

N 1502, a Martin B-26C, was manufactured on December 23, 1943, and delivered to the U. S. Navy on January 6, 1944. The airplane was bought from surplus by a private individual in Honduras, Central America, and sold to the Honduran Government. It was subsequently purchased from the Honduran Government by Continental Car Company and delivered to Air Research Manufacturing Company of Los Angeles, California for modification and conversion to an executive-type transport. The airplane was granted a type certificate and licensed under the provisions of a waiver of Part 9 of the Civil Air Regulations, adopted by the Civil Aeronautics Board on June 17, 1953, as Order No. S-574.

At the time of delivery of the airplane to Air Research for conversion it had accumulated a total of 371.15 flying hours. At the time of the accident it had accumulated a total of 2,967.15 flying hours, and a time since overhaul of 2,596.00 flying hours. The flying time since the last regular (quarterly) inspection was 76 hours and 50 minutes.

The engines were Pratt and Whitney model R-2800-CB16. All prescribed periodic maintenance had been complied with. The left engine had a total time of 1,706 hours, with 645 hours since overhaul, the right had a total of 1,579 hours, with 534 hours since overhaul. Propellers were Hamilton Standard model 43E60 with 6895-A-8 blades. Their maintenance was current and overhaul of all blades had been within prescribed limits.

This B-26C was equipped with the following.

COMMUNICATIONS EQUIPMENT

- 1 - VHF Transmitter, 360 channel, 40 watts, collins 17M-1
- 1 - VHF Receiver, 360 channel, Collins 51X1A
- 1 - VHF Transceiver, 360 channel Aircraft Radio Corp., Type 210

ADF's

- 2 - Bendix R5/ARN-7, modified by Qualitron to be interchangeable with MN-62

VHF NAVIGATION

- 1 - VHF Receiver with automatic instrumentation, Collins 51R3, with 361A1 instrumentation unit

- 1 - VHF Receiver, Aircraft Radio Corp , Type 15D with manual instrumentation
- 1 - UHF Glideslope Receiver, 10 channel, Collins 51V1
- 1 - Marker Beacon Receiver, Bendix MN-53, with single three-light presentation

PANEL INSTRUMENTS (Associated with radio, not a complete list)

- 2 - Gyro Horizons, electrically operated, Sperry H-5 with quick erectors
- 1 - Sperry C-2 Directional Gyro, with magnetic slaving
- 1 - Radio Magnetic Indicator, Bendix 36105, with switch for Omni or Red ADF
- 1 - Course Selector for Collins Omni
- 1 - Course Selector for ARC Omni
- 2 - ID48 Course Deviation Indicator with switching for either set to either indicator
- 1 - Set Instruments for Zero Reader
- 1 - Dual ADF Indicator

STEERING COMPUTOR

- 1 - Sperry Zero Reader, Z-2

INVERTORS

- 2 - Leland SE5-2, 1500 VA

WEATHER RADAR

- 1 - Bendix C Band, RDR-1C

Captain John R Dunham, age 41, had a total flying time of 10,577 hours, of which 805 hours had been in B-26's. He had flown 51 hours during the 30 days preceding the accident and had had a rest period of 19 hours and 45 minutes before the final takeoff. Mr. Dunham had been employed by Continental Can Company since January 1952 and held all FAA certification appropriate for the flight.

Copilot Donald Martin, age 40, had a total flying time of 3,766 hours, of which 1,728 hours had been in B-26's. He had flown 55 hours during the 30 days preceding the accident and his rest period before the final flight was 19 hours and 45 minutes. Mr Martin had been employed by Continental Can since July 1950, and held all FAA certification for the flight

Analysis and Conclusions

It is apparent that there must have been control difficulty of an undetermined nature. This may have been the breakage of a structural member or possibly a deformation or bending of a part, precipitating the dive. It also seems logical that this had its inception while the flight was in severe turbulence only a few minutes earlier. It is not possible to do more than surmise as to the genesis of the trouble, because a considerable number of initial malfunctionings could have resulted in the aircraft's turn and final plunge. The physical evidence recovered did not reveal the nature of the trouble. The nature of the aircraft's maneuvers prior to the final dive, and their proximity to the Marion Airport, may suggest an intent to land there; there is no tangible evidence of this.

It appears probable that the aircraft's speed was reduced during the thunderstorm activity; this would account for the time of the crash being a few minutes after the aircraft should have passed the vicinity. Being some 15 miles to one side of the planned course may well have been an attempt to avoid the worst of the weather as indicated by airborne radar. There is no explanation as to why this much deviation from the airway was not reported; possibly it was because of stress of the circumstances.

Pilot competence, as indicated by company and other records, appears to have been of high quality. Both pilots were well experienced generally and specifically on this particular model aircraft

This and other seemingly similar air disasters have led the Board to initiate a series of conferences with other government agencies and with industry to better both the currency and accuracy of flash advisories (weather) and to impress their importance on the flying public. These conferences are now in the exploratory stage and are aimed at the development of new procedures designed to assure the reception of severe weather bulletins by those flights which could come within influence of the severe weather.

Probable Cause

The Board is unable to determine the probable cause of this accident. However, circumstances suggest control difficulty of an undetermined nature during passage through an active developing line of thunderstorms.

BY THE CIVIL AERONAUTICS BOARD:

/s/ WHITNEY GILLILLAND
Chairman

/s/ CHAN GURNEY
Vice Chairman

/s/ G. JOSEPH MINETTI
Member

/s/ ALAN S. BOYD
Member

/s/ J. S. BRAGDON
Member

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

Investigation and Taking of Depositions

The Civil Aeronautics Board was notified of the accident very shortly after occurrence. Board investigators were immediately dispatched to the crash site. Thereafter, an investigation was initiated and conducted in accordance with the provisions of Title VII of the Federal Aviation Act of 1958. In connection with the Board's investigation of the accident depositions were taken at Morristown, New Jersey, on July 27, 1959, at Chicago, Illinois, on August 6, 1959, and at Marion, Ohio, on August 7, 1959.

Aircraft Owner

Continental Can Company, Inc , is a New York corporation with headquarters at 100 East 42nd Street, New York, New York. At the time of this accident it owned and operated six aircraft, including N 1502, and employed 13 pilots, co-pilots, and flight engineers.