

## CIVIL AERONAUTICS BOARD

## ACCIDENT INVESTIGATION REPORT

Adopted: July 9, 1951

Released: July 16, 1951

## AVIATION CORPORATION OF SEATTLE (WESTAIR TRANSPORT), 300 MILES EAST OF MELBOURNE, FLORIDA, JUNE 5, 1950

## THE ACCIDENT

A Curtiss-Wright C-46F aircraft, N-1248N, was ditched at sea 300 miles east of Melbourne, Florida, at 2203,<sup>1</sup> June 5, 1950. The aircraft was being operated by Westair Transport,<sup>2</sup> and had on board 62 passengers and three crew members. Twenty-eight of the passengers lost their lives as the result of this ditching, and the aircraft sank in one of the deepest portions of the Atlantic Ocean and could not be recovered.

## HISTORY OF THE FLIGHT

The flight departed from Isle Grande Airport, San Juan, Puerto Rico, at 1724, June 5, 1950, for Wilmington, North Carolina. Joe M. Halsey was the captain in command, William Holleran, copilot, and Hector Medina, steward. In addition to the 62 passengers and three crew members, the aircraft carried 8,436 pounds of fuel and 1,363 pounds of baggage, which resulted in a total aircraft weight at the time of takeoff of 48,258 pounds. This was 258 pounds in excess of the certificated limit.

Prior to their departure from San Juan, the crew filed with the CAA (Civil Aeronautics Administration) air route traffic control (ARTC) at San Juan an instrument flight plan which described the intended route to be from San Juan to the Caribbean island of South Caricos, then to the Carp Intersection, which is a point located approximately 144 miles southeast of Wilmington, and from there to Wilmington.<sup>3</sup> This over-water route carried the flight more than 400 miles east of the mainland of the United

States and north of the Bahama Island chain. Cruising altitude was to be 6,500 feet, and the estimated time to destination six hours and 50 minutes.

No difficulty was experienced by the crew during the first four hours of flight, and in a report transmitted to the San Juan Communications Station at 2117 the crew estimated that its position at 2143 would be 28°33' north latitude and 74°58' west longitude. This point is 390 miles east of Melbourne, Florida, and 300 miles northeast of Nassau in the Bahamas. A few minutes before the flight arrived over this estimated position the crew noticed that the indicated right engine oil quantity had fallen from 32 gallons to 20. Immediately after this was observed, the left engine backfired and lost power.

Application of carburetor heat and adjustment of fuel mixture and other engine controls were ineffectual, so the left propeller was feathered. Captain Halsey then took over the flight controls from Copilot Holleran who had been piloting, and the aircraft was headed toward Nassau, the closest island with an adequate landing field. He then sent a message at 2146 to the Overseas Foreign Aeronautics Communications Station (OFACS) at Miami, which was intercepted by the CAA Communications Station at San Juan, that the left propeller was feathered and the flight was proceeding toward Nassau. Power settings for the right engine were increased to 2400 rpm and 30 in manifold pressure. The cruising altitude of 6,500 feet was maintained for about five minutes. During the transition to single-engine flight the air speed decreased from 178 to 140 miles per hour.

Shortly before the left engine was feathered, a second C-46, N-1246N, operated by the same corporation, passed this flight flying in the opposite direction toward San Juan. The crew in the second aircraft was contacted and requested to stand by. This was done,

<sup>1</sup>All times referred to herein are Eastern Standard Time and based on the 24-hour clock.

<sup>2</sup>Aviation Corporation of Seattle was doing business as Westair Transport.

<sup>3</sup>See chart showing route and point of ditching, Appendix I.

and they were able to give assistance by maintaining communications with shore stations in the rescue operations which were to follow

Shortly after the 2146 message that the left propeller was feathered, the crew in N-1248N observed that the indicated oil quantity for the right engine had fallen from 20 to 15 gallons. At about the same time the crew also observed that the right engine was overheating with an indicated cylinder head temperature of nearly 300 degrees centigrade. Because of this condition, Captain Halsey said that he began a voluntary descent to ditch before complete right engine failure occurred. A message was sent at 2154, "Been losing altitude, at 1500". Six minutes later, at 2200, a second message was sent, "200 feet, losing altitude". And then a third, at 2203, "Just about in the drink".

An attempt was made to hold altitude at 200 feet above the water until shore stations could obtain radio bearings. According to the captain, the right engine speed decreased from 2400 to 2250 rpm and could not be increased. Air speed was then reduced to between 100 and 110 miles per hour by retarding the right throttle, and the aircraft was ditched about 20 minutes after the malfunctioning of the left engine began. The wing flaps and landing lights were not used.

At the time, the weather was clear and the wind was from the southwest at approximately 10 miles per hour. The moon had not risen, but the visibility was such that whitecaps could be seen.

As soon as the aircraft came to rest in the water, the crew entered the cabin where they opened the main cabin door and the emergency exits. The emergency exits were not opened prior to the ditching as prescribed in the company's Operation Manual. Some of the passengers then climbed out onto the wings, and others jumped into the sea. All seven of the 10-man life rafts were thrown overboard, five floated away in the darkness because their retaining ropes were not held, two were inflated. The three crew members and 34 of the 62 passengers were able to swim to and board the two life rafts.

The captain stated that he was the last person to leave the aircraft. The crew did

not take with them the emergency transmitter known as the "Gibson Girl" (which broadcasts on frequencies of 500 and 8280 kilocycles), and it went down with the aircraft. The captain, however, saved a flashlight. Much of the other emergency equipment on the two crowded life rafts was thrown overboard by the passengers.

During the night five flares were fired at intervals but were not observed. The second C-46, which had remained in the search area, reported at 2321, one hour and eighteen minutes after N-1248N had ditched, that they saw a blinking light on the water. They requested Miami Communications to obtain a fix. At 0018, about one hour after this fix was requested, the Federal Communications Commission reported a "fair" fix had been established on the second aircraft, the position being 28°10' north latitude and 75°12' west longitude. The following morning a Coast Guard aircraft located the survivors, and shortly afterwards the USS Saufley, a U S Navy destroyer, drew alongside and rescued those in the two life rafts. One survivor, who had clung to an uninflated raft during the night, was located, but was killed by sharks before he could be taken from the water. The position of the rescue was 27°51' north latitude and 75°22' west longitude.

#### INVESTIGATION

Since the aircraft sank, the only evidence available from which engine failure can be determined consists of statements from those who were on board the aircraft, and the company's aircraft records. Aircraft records show that the crew which flew N-1248N to San Juan immediately before this flight reported it to be mechanically all right. Further, the certificated mechanic who accomplished the pre-flight inspection before takeoff of the subject flight found the aircraft to be capable of normal operation in all respects. None of the records indicated any deficiency in aircraft maintenance which might have had any material bearing on this accident. It was found in the examination of these records that the hourly oil consumption of both engines had been within accepted limits, also that the aircraft had been serviced before takeoff with 1,406 gallons of 100 octane fuel and with 32 gallons of oil in each of the

tanks Investigation of the company's fueling facilities at San Juan showed that these were satisfactory The correct octane fuel and the proper grade of oil were used, and the quantity of fuel on board was attested to by the certificated mechanic who performed the pre-flight inspection

According to test data shown in the required CAA Approved Flight Manual, this type of aircraft in the en route configuration is capable of climbing on one engine at an altitude of 6,500 feet when loaded to a gross weight of 48,000 pounds Specifically, the aircraft will climb 190 feet per minute at sea level under the following conditions weight 48,000 pounds, landing gear and flaps retracted, cowl flaps open 20 degrees, air-speed 130 miles per hour, left engine inoperative with propeller feathered, and the right engine operating at maximum continuous power At 6,500 feet, under the same conditions, it will climb at the rate of 65 feet per minute At 44,600 pounds, which was the approximate weight of N-1248N at the time of ditching, the aircraft will climb at sea level at the rate of 275 feet per minute and at 6,500 feet at the rate of 140 feet per minute

The company's pilot training program consisted of both ground school and flight training A ground school correspondence course of eleven lessons, published by the Airway Training School, was given to the pilots to be studied, and upon which they were examined and graded Some of the pilots received ground training in ditching procedures at the Pan Avion Company in Miami, and others were merely interrogated by the company's chief pilot regarding these procedures The flight training program required that new personnel employed as captains ride as copilots and satisfactorily pass two en route check rides before assuming the duties of captain Copilots were also instructed while en route by the pilot in command There was no evidence to indicate that pilots were individually instructed in single-engine emergency procedures or other flying techniques, as prescribed in the Civil Aeronautics Manual 42<sup>4</sup>

Captain Halsey had completed all the ground school and flight training courses and was, at the time of the accident, the company's chief pilot Copilot Holleran, who had been hired on a temporary basis, was enrolled in the ground school course provided by the company on May 1, 1950, and had completed five of the ground school lessons Under company procedure, had he continued as a pilot Mr Holleran would have been required to complete the ground school course within 60 days of his initial employment As set forth in the Supplemental Data appendix, Mr Holleran held all necessary pilot certificates and ratings

All 62 passengers were Puerto Ricans, and since the majority spoke only Spanish, the steward, also a Puerto Rican, was the member of the crew best able to convey instructions to them He was employed by the company the morning this flight departed, and received a description of his duties at this time He had no other training As all seats in the main cabin were occupied, he did not remain with the passengers, but took a seat forward on the flight deck with the crew<sup>5</sup> According to the surviving passengers, the steward had given them very little instruction for the emergency Some of the passengers said

on the type aircraft on which he is to serve if shall also provide for the continued maintenance of a high standard of pilot proficiency This training shall include, but not be limited to

"(1) Take-offs and landings under varying conditions of load, wind, low ceiling and visibility, inoperative engine, etc ,

"(2) Flight with one or more engines inoperative, including flight with any one engine fully throttled at maximum authorized load, either at one-engine-inoperative service ceiling or at an altitude equivalent to 1,000 feet above the highest part of the terrain on the route or routes to be flown,

"(3) Operating under normal and maximum limits of power and speed,

"(4) Conduct instrument flight including navigation by low frequency radio ranges, VHF, and ADF, letting-down-through procedures utilizing radio range, ADF, ILS, GCA, etc , whichever is used by the air carrier in its normal operations

"(c) EMERGENCY PROCEDURES The training program shall include instruction in emergency procedures particularly with respect to engine failure, fire in the air or on the ground, evacuation of passengers, location and operation of all emergency equipment, power settings for maximum endurance and maximum range, etc "

<sup>5</sup>Instructions in the company's Operation Manual specified that the steward must occupy the back seat in the cabin when not needed elsewhere and that the visits to the crew compartment must be limited to 10 minutes

According to Civil Air Regulations, the company was not obligated to employ and use a steward on the subject flight However, when a steward is used, the company must comply with the section of its required Operations Manual pertaining to the duties and responsibilities of stewards

<sup>4</sup>Civil Aeronautics Manual 42--"Irregular Air Carrier and Operation Rules"

42 45-1 TRAINING PROGRAM

"(b) FLIGHT PHASE The flight phase of the training program should be so planned as to insure adequate initial qualification of the pilot

they were told that a landing was necessary, but that it would be made on land and not at sea. They were not told before the ditching to fasten their safety belts, and the majority said they were not instructed how to inflate and use the life jackets and the life rafts.<sup>6</sup> The steward, however, testified to the contrary. At the time of ditching lights were on in the cabin, and the seven 10-man life rafts which were aboard were located near the main cabin door.

Activities of search and rescue involved the CAA Communications Center at Miami, the U S Coast Guard, the U S Navy, the Federal Communications Commission, the company's aircraft N-1246N, and several Merchant Marine vessels. All communications with the aircraft in distress and with the second C-46 which circled in the ditching area were on the frequency of 6595 kilocycles.

The following search and rescue events are significant. No emergency was declared by the crew in the distressed aircraft. An emergency was inferred by CAA Communications at Miami from the message sent at 2154, "Been losing altitude, at 1,500" and they relayed it to the search and rescue coordination center at Miami at 2158. One minute later, at 2159, search and rescue facilities on the coast were alerted through the Coast Guard teletype. At 2203 the last message, "Just about in the drink," was received. The crew testified that they ditched the aircraft immediately after sending this message. At 2217, 23 minutes after the emergency was known, the Coast Guard Radio Stations at Jacksonville and Miami transmitted on 500 and 3280 kilocycles requesting ships at sea to give their position. Responses to the original broadcast were received from the SS Musa and, later, from the SS Santa Paula. This latter vessel was approximately 60 nautical miles southeast of the aircraft's ditching position. Other merchant

vessels at greater distances reported to the Coast Guard between the times of 2217 and 2340.

At 0005 the following morning the rescuing vessel, the USS Saufley, was notified by the Navy of the emergency. This vessel was within 30 nautical miles of the aircraft at the time of its emergency. Evidence indicates that at the time of the ditching it was 20 miles southwest of the 28°33' north latitude and 74°58' west longitude. It was near this point that the flight turned toward Nassau after the left engine failed. The southwesterly course flown during the 18 to 20 minutes between the time of this turn and the ditching would have carried the aircraft near the Saufley, 20 to 25 miles away.

The Federal Communications Commission and other search and rescue facilities were notified of the emergency at 2158. The first information from the Federal Communications Commission concerning fixes or bearings was transmitted to Search and Rescue two hours and 15 minutes after the ditching and was that a "fair" fix placed the second aircraft, which was circling in the area, at 28°10' north latitude and 75°12' west longitude.

At the time this flight was made the route being flown was approved for the carrier by the Civil Aeronautics Administration. However, since this accident, as a precautionary measure, the Civil Aeronautics Administration has not approved any direct route in two-engine aircraft from San Juan to any point north of Jacksonville, Florida. (See Appendix II)

#### ANALYSIS

The passengers and crew were in agreement that the left engine backfired. Accepting the captain's evaluation of the malfunctioning of this engine, its propeller was feathered because there was continuous backfiring and a definite loss of power. As previously stated, shortly after this trouble began the right engine became overheated, and the captain believed it was necessary to descend and ditch before a complete power failure occurred. Once the right engine began overheating, no attempt was made to unfeather and restart the left engine in an effort to gain additional power, and thus maintain altitude. The captain did not consider it advisable to restart the left engine because of the following possibilities. If an at-

<sup>6</sup>Section 42.59 of the Civil Air Regulations, provides that "The air carrier shall establish procedures for familiarizing passengers with the location and use of emergency equipment." The company's Flight Manual provides in compliance with this regulation "It shall be the Flight Attendant's duty to instruct the passengers on the use of Life Jackets, Life Rafts and the use of Evacuation Equipment." The company's Operation Manual also specifies that "First Pilots shall be in command of the aircraft at all times during flight, and shall be responsible for the safety of persons and goods carried and for the conduct and safety of the members of the crew."

tempt to unfeather and restart the engine had again resulted in the condition as described, it is possible that an engine fire would have resulted. Also, with the propeller unfeathered and the engine malfunctioning, a drag condition might have occurred, causing a higher rate of descent. Again, it is possible that under these conditions the propeller might have become uncontrollable, thus creating an additional hazardous condition.

Since the aircraft sank and could not be recovered, it is impossible to determine what difficulties or failures occurred to result in the loss of power of the left engine, and the loss of oil and subsequent overheating of the right. The only evidence concerning the engines is that given by the crew and the passengers, therefore, there is no basis for questioning the crew's evaluation of the situation and the decision to ditch.

Apart from questions involving the powerplants, the investigation indicated that if the company and the crew had complied with existing regulations and recommended procedures, there should have been a substantial saving of lives.

The company elected to utilize the services of a steward on the flight, and he was listed as an additional crew member. Therefore, instructions pertaining to the duties of stewards, which were written in this company's required Operations Manual, should have been followed. These instructions were specific regarding training, general duties, and ditching procedures. Certainly, the short briefing of these duties given the steward the morning of the flight was not sufficient.

In analyzing this accident, it is apparent that the company and the captain are to be censured for failure to comply with approved operation procedures. The steward had not been properly trained to care for the passengers during an emergency condition. The duties of a steward in an emergency are to look to the passengers' safety and to assist in the evacuation of the aircraft. His station is in the cabin where he can best perform these duties. No seat was provided in the cabin for him. Had all the passengers put on their life jackets, and had they been properly instructed how to inflate them, and had their seat belts been

properly fastened, the confusion which existed at the time of the ditching would probably not have occurred. Subsequent to the ditching operation, there was sufficient time to not only inflate the life rafts, but also to evacuate the passengers and crew. If these emergency procedures had been accomplished, it is quite probable that many more lives would have been saved.

#### FINDINGS

On the basis of all available evidence the Board finds

1 The crew, the carrier, and the aircraft properly certificated

2 While en route, and when near a position of 28°33' north latitude and 74°58' west longitude, the flight experienced malfunction of both the engines, which required ditching the aircraft at sea

3 The company and the captain did not comply with the approved operation procedures, in that they failed to provide necessary instructions to the passengers in the use of emergency equipment

4 The steward was not properly trained to perform his duties under emergency conditions

5 Though all search and rescue facilities were notified of the emergency by 2159, the location of the ditched aircraft was not fixed until 0018 the next day. This fix was obtained by the Federal Communications Commission on a second aircraft which remained in the area of the emergency, transmitting on a frequency of 6595 kilocycles

6 An alert to all ships at sea was transmitted at 2217, however, the USS Saufley, the vessel nearest the scene of the ditching, did not learn of the emergency until 0005 the next day

#### PROBABLE CAUSE

The Board determines that the probable cause of this accident was the malfunctioning of both engines from causes unknown

BY THE CIVIL AERONAUTICS BOARD

/s/ DONALD W NYROP

/s/ OSWALD RYAN

/s/ JOSH LEE

/s/ JOSEPH P ADAMS

/s/ CHAN GURNEY

# Supplemental Data

## INVESTIGATION AND HEARING

The Civil Aeronautics Board's Miami, Florida, office was notified at 2215, June 5, 1950, by CAA Communications that N-1249N ditched at sea while on a flight from San Juan, Puerto Rico to Wilmington, North Carolina. An investigation was begun immediately in accordance with 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 June 26-29, at San Juan, Puerto Rico.

## AIR CARRIER

Aviation Corporation of Seattle, incorporated under the laws of the State of Washington February 2, 1947, with its principal place of business located at Seattle, Washington, was doing business as Westair Transport. The corporation held Letter of Registration No. 786, issued to it pursuant to Section 292 I of the Board's Economic Regulations, and Air Carrier Operating Certificate No. 7-97, issued by the Administrator of Civil Aeronautics.

## FLIGHT PERSONNEL

Captain Joe M. Halsey, age 39, had been employed by the Aviation Corporation of Seattle since May 1947. He held a valid airman certificate with airline transport, multi and single-engine land, and instrument ratings. His last instrument check was accomplished May 1, 1950. At the time of the

accident, he had accumulated a total of 7,000 flying hours, of which approximately 2,500 hours were in C-46 type equipment.

Copilot William Holleran, age 27, had been employed by Aviation Corporation of Seattle on a temporary basis since May 1950. He held a valid airman certificate with commercial pilot, multi and single-engine land, and instrument ratings. He accomplished his last instrument check April 4, 1950, and successfully passed his last CAA physical examination May 6, 1950. At the time of the accident, he had accumulated a total of approximately 2,000 flying hours, of which 150 hours were in C-46 type equipment.

Hector Medina, steward, was employed by Aviation Corporation of Seattle in San Juan on June 5, 1950. Prior to June 5, 1950, he had been employed by the Puerto Rico Transportation Authority as a flight information clerk.

## AIRCRAFT

N-1249N was a Curtiss-Wright C-46F aircraft. It was manufactured on July 27, 1945, and was leased by Aviation Corporation of Seattle from the U. S. Air Force. At the time of the accident it had flown a total of 2,890 hours. It was equipped with two Pratt & Whitney R-2800-75 engines and two Hamilton Standard Hydromatic Propellers. The left engine had a total of 699 hours, and the right engine had a total of 577 hours since last overhaul.

## Appendix II

The corrective action taken by the Administrator dated June 29, 1950, applies to all air carriers operating two-engine aircraft between Puerto Rico and points in the United States, and is as follows

- 1 The island chain shall be followed
- 2 No direct flight shall be authorized to any point north of Jacksonville, Florida
- 3 In all cases fuel supply shall be calculated in accordance with Civil Air Regulations 42 52(b)

Flights from San Juan to Miami or West Palm Beach, Florida, will be regarded in the nature of "On airways" flights and no specified authorization will be required. However, no direct flights from San Juan to Daytona Beach or Jacksonville, Florida, will be authorized until the air carrier has demonstrated in accordance with MOP 3-2 6, that such flights can be safely conducted. The flight crew complement for such routes shall consist of at least one flight radio operator and one flight navigator in addition to the required number of pilots, unless the demonstration flight indicates that the operation can be safely conducted with a smaller flight crew complement.

This policy was amended on July 12, 1950, as follows

- 1 All over-water flying between continental United States and its possessions or territories is considered to be overseas, not international flying (Reference MOP

3-1 01 (b))

2 Fuel requirements as found in Section 42.52 (b) shall apply except on the San Juan-Miami or West Palm Beach route, which has previously been referred to as "On airways" and therefore 42 52 (a) is applicable

3 Communications requirements as found in Section 42 23 (b) will apply except that on the San Juan-Miami or West Palm Beach route, which has previously been referred to as "on airway," compliance with the last sentence is not mandatory

4 Flight Radio operator and navigator—Any flight of over one hour (at normal cruising speed) from land must have a certificated navigator and radio operator aboard, unless the carrier has demonstrated the pilot's ability to conduct this particular route by utilizing the existing radio navigational aids and communication facilities and his operation specifications so indicate such authorization

5 No exceptions to the above will be authorized, except in the case of "all cargo" flights. An operator may request deviations from the above for his all cargo operations and if the region concurs with the agent's recommendation, they will word the deviation as they believe it should be incorporated in the operations specifications and send it to the Washington Office with their recommendation, where it will be acted upon immediately and either confirmation or reasons for rejection sent to the field

# Appendix I

