SA- 378

File No. 1-002

CIVIL AERONAUTICS BOARD

AIRCRAFT ACCIDENT REPORT

ADOPTED: July 12, 1965 **RELEASED:** July 15, 1965

PARADISE AIRLINES, INC.
LOCKHEED CONSTELLATION L-049, N 86504
NEAR ZEPHYR COVE, NEVADA
MARCH 1, 1964

SYNPOSIS

A paradise Airlines Lockheed L-049, N86504, Flight 901A, crashed nine nautical miles northeast of the Tahoe Valley Airport at 1129 P.s.t., March 1, 1964. All 85 occupants of the aircraft perished in the crash and the aircraft was destroyed.

N86504 was en route to the Tahoe Valley Airport from Oakland, California, with intermediate stops at Salinas and San Jose, California. The aircraft made an unsuccessful approach to the Tahoe Valley Airport and was last seen proceeding in a northerly direction out over Lake Tahoe where it disappeared in a snow storm.

The Board determines that the probable cause of this accident was the pilot's deviation from prescribed VFR flight procedures in attempting a visual landing approach in adverse weather conditions. This resulted in an abandoned approach and geographical disorientation while flying below the minimum altitude prescribed for operations in mountainous areas.

Investigation

A Paradise Airlines Lockheed L-049, N86504, Flight 901A, crashed nine nautical miles northeast of the Tahoe Valley Airport at 1129 P.s.t.,[1] March 1, 1964. All 85 occupants of the aircraft perished in the crash and the aircraft was destroyed.

N-86504 was en route to the Tahoe Valley Airport from Oakland, California, with intermediate stops at Salinas and San Jose, California. The aircraft made an unsuccessful approach to the Tahoe Valley Airport and was last seen proceeding in a northerly direction over Lake Tahoe where it disappeared in a snow storm.

On the morning of March 1, 1964, the crew of Flight 901A began their preparation for flight from Oakland to Tahoe Valley Airport, California, via Salinas and San Jose. The Oakland company dispatcher reviewed the current surface charts and the 700 millibar (approximately 10,000 feet m.s.l.) chart at the U. S. Weather Bureau office (USWB). He then proceeded to the Paradise Airlines dispatch office where he reviewed weather sequences and forecasts from Service "A"[2] teletype.

1/ All times herein are Pacific standard based on the 24-hour clock.

2/ Service "A" is an FAA operated teletype system that transmits scheduled weather sequences, pilot reports, USWB forecasts, advisory messages, and other pertinent weather data.

Although the USWB forecast poor flying conditions at Lake Tahoe, the company dispatcher forecast more favorable weather based on his evaluation of the weather data and so briefed the pilot of N86504. The dispatcher and the pilot[3] both signed the dispatch release following this briefing.

The aircraft was accepted from the maintenance facility[4] and released for flight by the flight engineer. There were no discrepancies entered on the log shee and the preflight check was "signed off."[5]

The aircraft departed Oakland at 0843 and was ferried to Salinas, California, arriving at 0911 The aircraft log reflected no maintenance servicing at Salinas. The aircraft departed at 0927 with 18 passengers and arrived at San Jose, Californi at 0946.

At San Jose only the Nos. 1, 2, and 3 engines were shut down. The captain deplaned and telephoned the San Jose FAA Control Tower and attempted to file an Instrument Flight Rules (IFR) flight plan He was requested to contact the Oakland Air Route Traffic Control Center (ARTCC) via a direct line He then requested the telephone number of the Oakland Flight Service Station (FSS). There is, however, n record of his contacting the FSS. Because Service "A" weather sequences were not available to the captain at San Jose, the Tahoe Valley Airport company weather was relayed on company teletype and provided to him. He also received a dispatch relea for Flight 901A from the Oakland dispatcher.

Flight 901A departed the gate at San Jose at 1035 and was airborne at 1040 on Visual Flight Rules (VFR) flight plan. At departure the aircraft had 81 passengers a crew of four aboard. The weight and balance were within limits. After becoming airborne, the crew requested and received an IFR clearance via airways Victor 6 South to Sacramento, Victor 6 to the Lake Tahoe VOR, to maintain 11,000 feet. The company prepared flight plan then called for a VFR flight to the Tahoe Valley Airport because there was no approved IFR approach procedure for the destination.

At 1057 Flight 901A was in radio communication with Paradise Flight 802 which was outbound from the Tahoe Valley Airport. The captain of Flight 802 advised the crew of Flight 901 that he had encountered " . . . icing at 12,000 (feet) . . . the were snow showers over the lake and clouds topping mountains in the vicinity. . . . This information was acknowledged by Flight 901A. Immediately after this communica tion the crew of Flight 901A requested and received from Oakland ARTCC a clearance to climb to 13,000 feet m s.l. Nine minutes later the crew requested 14,000 feet When that altitude was denied because of conflicting traffic they requested and received a clearance to climb to 15,000 feet.

The crew reported to the company, at 1108, that they had passed Sacramento at 1102 and estimated their arrival at Tahoe at 1129. At approximately 1114, about

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3/ The pilot was also a certificated dispatcher.

4/ Paradise Airlines had no aircraft maintenance facilities. All maintenance was performed pursuant to contractual arrangements between Paradise Airlines and FAA approved maintenance facilities.

5/ The signature on an aircraft log sheet indicating a record of completion of a specific task.

25 miles southwest of the Lake Tahoe VOR, on Victor 6, Oakland ARTCC lost radar contact with the flight due to precipitation clutter[6] on the controller's radar scope. Four minutes later, at 1118, the ARTCC controller instructed the flight to hold southwest of the Lake Tahoe VOR on the 216-degree radial and expect further clearance at 1131. The instructions were acknowledged by the crew and they reported over the VOR at 15,000 feet. The controller then asked ". . . what are your intentions as far as landing at Lake Tahoe?" The crew stated they would contact their company and advise. Less than 40 seconds later the crew advised the controller they were on top and ". . . we're going to proceed to the south end of the lake ah reported some holes down there." When asked if they were cancelling their IFR clearance the crew requested that it be held for them because they might have to return to the VOR. Shortly thereafter, the ARTCC controller called the flight to advise them of traffic in the vicinity of the Lake Tahoe VOR but the crew of Flight 901A did not answer the call.

At 1121 Flight 901A called ARTCC and canceled its IFR clearance stating they could "see the south shore."

The Paradise Airlines passenger agent at the Tahoe Valley Airport was responsible for communications from the airport to company aircraft. He stated that the crew of Flight 901A did not contact him until 1127. At this time he gave them the 1100 Tahoe Valley weather which was: Estimated ceiling 2,000 feet overcast; 3 miles visibility, snow showers, temperature 32°, dewpoint 32°; wind from 210°; 10 knots, gusts to 15 knots, altimeter 29.97 He also asked the crew to call the company if they decided to land at Reno, Nevada rather than Tahoe Valley. The crew acknowledged this transmission with "will do."

At 1129, the passenger agent heard a radio call from the flight but was unable to establish communication with them. This was the last known transmission from Flight 901A.

A witness on the west shore of Lake Tahoe (See Attachment No. 1) heard, but did not see, an aircraft proceeding over the lake between 1100 and 1130 The weather in his vicinity was inclement with visibility ranging from zero to one-fourth mile in blowing snow. A witness on the east shore also heard, but did not see, an aircraft southbound over the lake at about the same time.

A ground witness stated that she saw a Paradise Airlines Constellation flying toward the airport operating normally in VFR conditions [7] She further stated that from her location she could see the western shore of the lake. The aircraft continued toward the airport until it disappeared behind thin clouds and she heard power added to the engines.

Several other ground witnesses, including an airline captain and a commercial pilot, in the same general area stated that the weather in the area was 300-700 foot ceiling, visibility one-half to three miles with moderate to heavy snow showers. The

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6/ Echoes displayed on a radar scope caused by radar returns from an area of rain or snow particles.

7/ See Attachment No. 1, Witness No. 3 location

wind was blowing 20-30 knots from the south-southwest. None of these witnesses saw heard an aircraft between 1100-1200 hours.

Five witnesses located about one mile north of the airport heard a low flying aircraft. A short time later they saw a Lockheed Constellation flying in a northerly direction toward Lake Tahoe at about 500 feet altitude. The landing gear was up but the gear doors were open according to one witness who stated he could see the tires. Another witness further north along the flightpath noted that the gear was up and the doors were closed. No determination of flap position could be made by witnesses. The aircraft flew toward the lake and disappeared from their view.

A witness two and one-half miles north of the airport observed the aircraft flying toward the lake on a northwesterly heading at an estimated 500 feet altitude, gear up. Visibility was restricted by ice crystals, a high wind was blowing, and the aircraft quickly disappeared from her view. Shortly thereafter, the weather worsened to blizzard conditions.

At approximately 1130 three persons on the east shore at Lake Tahoe, six miles north of the airport, heard a "large aircraft" fly over, headed in a northeasterly or easterly direction. None of these witnesses saw the aircraft. There was heavy snow and high winds in this area. The persons closest to the accident site, two to three miles, said the engine sound stopped abruptly but they did not hear a crash or explosion.

There were no other known aircraft operating in the Lake Tahoe area below 14,000 feet during this time period.

The wreckage was located at 0730, March 2, 1964, from a U. S. Air Force search and rescue helicopter. The wreckage area was nine nautical miles northeast of the Tahoe Valley Airport near the crest of a ridge of Genoa Peak, Nevada. The crest was approximately 8,900 feet m.s.l. in the wreckage area. This mountain forms the north side of Daggett Pass (See Attachment No. 1). The elevation of the top of the pass is approximately 7,300 feet m.s.l. and it is several miles wide in this area.

The aircraft initially struck several trees on the west slope of the ridge, at approximately 8,675 feet m.s l., slightly right-wing-low in a nearly level flight attitude. First ground contact, 120 feet beyond the initial impact point, was at an elevation of 8,695 feet m.s.l. The wreckage pattern was approximately 900 feet long oriented along a 077-degree magnetic bearing.

The aircraft sustained extensive breakup but all major components were accounted for in the primary wreckage area. No pre-impact defects were found in the flight control system.

At the time of impact the landing gear was retracted and the landing flaps were extended 60 percent. The Paradise Airlines Operations Manual specifies 60 percent flaps for takeoff, maximum angle climb performance, and when reducing speed for holding or maneuvering. The elevator, aileron, and rudder boost were on.

The cockpit trim indicators read: elevator trim three degrees noseup, rudder trim three degrees nose-right, and aileron trim five degrees right-wing-down.

Due to crash damage, information gained from examination of the flight instruments was limited to the following: The pilot's master direction indicator (MDI) was

indicating 217 degrees. The pilot's radio magnetic indicator (RMI) revealed a reading of 086 degrees. The copilot's MDI read 092 degrees. The automatic pilot directional gyroscope cards read 145 degrees on the upper card and 315 degrees on the lower card. The fluxgate compass transmitters which provide heading information to the MDI's, RMI's, and the automatic pilot were recovered and bench checked. No discrepancies were discovered.

The captain's altimeter was recovered with the barometric scale set at 29.93. The internal mechanism and pointers were detached from the gear train and no pointer marks on the instrument face could be observed under black light.[8/] The barometric scale adjustment screw was found unscrewed sufficiently to prevent locking with the shoulder on the adjusting shaft. If this adjusting screw is not properly seated it is possible to rotate the barometric scale of the altimeter without moving the hands on the instrument to reflect a corresponding change in indicated altitude.

Examination of the maintenance records of N86504 revealed eleven reports of malfunctions in the fluxgate compass system during the period from June 14, 1963 to February 29, 1964. Discrepancies were reported on both altimeters on the day preceding the accident. Additionally, flight crews said later, that they did not always enter inflight discrepancies on the aircraft log sheets.

Maintenance was performed on both altimeters and the No. 2 fluxgate compass transmitter the night before the accident. This work was performed by maintenance personnel who inspected and signed off their own work.

The mechanic who worked on the fluxgate compass had performed no previous maintenance on this type of transmitter and did not refer to any available technical publication for guidance. He did not check the complete system or swing the compass after re-installation as required by the maintenance manual. This work was accomplished because the compass had been reported as unreliable in turns on the day preceding the flight.

Malfunctioning of both altimeters was reported on February 29, 1964. The captain's altimeter was reported to be "sticky" in descent in that it sometimes "hung up" and then jumped 150-200 feet. The copilot's altimeter was reported to indicate approximately 100 feet low on the ground

These altimeters were brought to the maintenance facility where they were checked on a test stand and adjusted. The mechanic who performed this work does not recall securing the barometric scale adjusting screw that he unscrewed as part of the adjustment of the captain's altimeter. Both altimeters were installed in the aircraft by a radio mechanic who had never done this kind of work before. He did not pressure check or leak check the pitot static system after this installation as required by the appropriate maintenance manual.

The anti-icing equipment installed on N86504 included propeller, windshield, and engine systems as well as electrical pitot heating. No airfoil de-icing boots were

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8/ Ultraviolet light tests were made of recovered instruments in an attempt to determine instrument readings at impact. The fluorescent compound on the instrument needles or hands will occasionally leave an imprint on the instrument face which can be detected on exposure to an ultraviolet light.

installed on the wings. Examination of the wreckage revealed that the pitot heater switches were "on" as was the propeller and windshield alcohol switch. The windshield anti-ice control valves were "off."

The Paradise Airlines Operations Manual stated in part. "Company aircraft will neither be dispatched nor flown into a known or probable heavy icing condition. Aircraft may be flown into light or moderate icing conditions only if full de-icing and anti-icing equipment for wings, propellers, empennage, carburetors, windshields, and pitot static tubes is installed and in operating condition, and if the aircraft is approved for flight in icing conditions not exceeding moderate" The anti-icing equipment installed on N86504 did not comply with the conditions set out in the criteria above for operation in icing conditions.

No pre-impact discrepancies were found in the hydraulic, booster control, landing gear, air conditioning and pressurization, vacuum, oxygen, fire protection, or electrical systems.

Inspection of the navigation systems revealed that both of the automatic direction finder (ADF) receivers were tuned to 375 kilocycles. The only navigational aid, with this assigned frequency, in the Lake Tahoe area was the Donner Summit non-directional radio beacon located approximately eight and three-quarters miles northwest of the Lake Tahoe VOR. The VOR receivers were both tuned to the Lake Tahoe VOR frequency.

No evidence of operational distress or pre-impact damage was found in the engines or propellers.

The aviation area forecast issued by the USWB office at San Francisco valid from 0400-1700, March 1, 1964, indicated that a Pacific cold front was moving into northwestern California. The mountains of northern California and northwestern Nevada would become obscured well ahead of the front. Occasional moderate icing in clouds and icing precipitation 100-150 miles ahead of the frontal zone was forecast. The freezing level was forecast to be 7,000-9,000 feet ahead of the front, lowering to 4,000 feet after frontal passage.

The aviation area forecast issued by the same office at 1045 was valid from 1100-2300, March 1, 1964. It indicated that the front was near a line from Redding to Ft. Bragg, California. This forecast indicated that the mountains in western Nevada would be obscured by clouds and snow showers with moderate to briefly heavy icing in showers near the front.

An Advisory for Light Aircraft was issued at 0615 by the San Francisco Weather Bureau Office valid 0630-1030 which warned of brief moderate icing in clouds and icing in precipitation in northwestern Nevada, north of a line running from San Jose, and Stockton, California to Reno, Nevada. At 0910 another Advisory for Light Aircraft warned of occasional moderate icing, briefly heavy, in association with the cold front moving into the area of northwestern California and western Nevada.

All of the weather information was available to the Paradise Oakland dispatcher before and during the flight, both at the USWB office at Oakland Airport and on his own Service "A" teletype receiver.

The dispatcher testified that he used the current weather sequences and area weather forecast in his briefing of the crew of Flight 901A before their departure

from Oakland. He stated that he was not aware of the Advisory for Light Aircraft which warned of brief moderate icing in the area Flight 901A would traverse. He provided the captain with the area weather forecast and current sequences to study during the briefing No warnings or advisory messages regarding the weather in the Lake Tahoe area were forwarded to the crew while the aircraft was en route. However, the current weather along the intended route of flight was available to the crew via the standard aviation weather broadcasts at 15 and 45 minutes after each hour.

Pilot reports pertinent to the route flown were released on the Service "A" teletype circuit at 0725, 0925, and 1025. They all indicated the presence of turbulence and the 1025 report stated that a pilot had accumulated one-quarter to one-half inch of rime ice at 13,000 feet between Reno, Nevada and Auburn, California. Additionally, the pilot of the company flight outbound from Lake Tahoe advised the crew of Flight 901A of icing at 12,000 feet near the Lake Tahoe VOR.

The USWB had approved a system of weather observation and reporting for the Tahoe Valley Airport as follows·

The weather observing duties at the Tahoe Valley Airport were assigned to county employees. The observations were to be transmitted by Paradise Airlines employees to their Oakland dispatch office, and relayed to the USWB office in Oakland. The observations were then forwarded to the Federal Aviation Agency (FAA) for transmission on the Service "A" teletype circuit. Investigation revealed that this system was sporadic in operation. The USWB expected all record and special observations to be forwarded, however, this was frequently not done. All observations taken were not transmitted by Paradise Airlines employees at Lake Tahoe. Reports received at the Oakland dispatch office were not always relayed to the USWB office. Further, on March 1, 1964, the dispatcher relayed incorrect and incomplete weather reports to the crew of Flight 901A while they were at San Jose.

The Operations Specifications for Paradise Airlines daytime flights into Tahoe Valley Airport required that the weather be at least a 4,000-foot ceiling and the visibility not less than ten miles. There were no navigational aids or instrument approach systems installed to serve the airport and instrument approaches were not authorized.

The weather met company minimums for operation at 0730 and 0800 on March 1, 1964. The 0900, 1000, 1100, and 1200 sequences showed the weather to be below minimums. A "special" report at 1010 indicated that the weather was "E30-◍."[2/] A USWB witness testified that "E-30-◍" was not a correct report. The dash modifies the described cloud condition to indicate "thin" coverage. Thin broken clouds do not constitute a ceiling while the ceiling classification symbol "E" clearly indicates a ceiling. Testimony at the hearing indicated that the Paradise Airlines station manager at Tahoe Valley Airport had inserted the dash before the "◍" symbol without the authorit or knowledge of the weather observer.

This incorrect weather sequence was sent to the Oakland dispatcher who stated that he used it as the basis for clearing Flight 901A from San Jose to Lake Tahoe. The dispatcher stated that this report confirmed his forecast that Flight 901A would be able to operate into Tahoe Valley in VFR flight conditions.

2/ E-30-◍ would translate to "Estimated 3,000-foot thin broken clouds"

The consensus of company pilot testimony at the hearing was that, if possible, an aircraft that was forced to abandon a landing approach to the Tahoe Valley Airport because of weather, should climb to a safe altitude, return to the Tahoe VOR, and proceed on an alternate course of action.

The investigation revealed that the air crew was properly certificated and qualified to perform the flight. While the captain had made approximately a dozen trips into Tahoe Valley Airport, the first officer had made hundreds of flights into that airport and prided himself on his knowledge of the terrain in the Lake Tahoe area.

Flight logs and testimony adduced at the hearing indicated that the captain had flown N86504 into Tahoe Valley the day preceding the accident. On this flight a number of discrepancies involving the altimeters and one fluxgate compass were brought to his attention. The captain of Flight 901A was the chief pilot for the company and had been flight checked by assigned FAA inspectors.

Analysis

The crew was properly certificated and qualified for this flight There was no structural failure, control system failure, or powerplant failure involved as a causal factor in this accident. The weight and balance of the aircraft is not considered a factor and the air traffic control procedures did not contribute to the cause of this accident.

The dispatcher did not properly evaluate and analyze the weather situation during his preflight activities on the date of the accident.

Further, the dispatcher failed to adequately monitor the weather in the Lake Tahoe area while the flight was en route. Had he done so, he would have seen that the weather was getting progressively worse in that area. Furthermore, both the dispatcher and the captain failed to properly evaluate that part of the forecast and Advisory to Light Aircraft which predicted icing along the route over which the flight was expected to operate. Although Flight 901A, a Lockheed L-049 is not classified as a "light aircraft," this "Advisory" calling for moderate icing should have been of considerable interest in the flight planning for this aircraft which lacked de-icing equipment. The dispatcher also failed to pass Service "A" weather information to the pilot while Flight 901A was en route. The dispatcher did provide some weather information to the pilot while the flight was on the ground at San Jose. However, because of the omissions and deletions of the dispatcher and the falsified 1010 Tahoe sequence, this weather information did not give the pilot an accurate weather picture.

Finally, the dispatcher did not notify the crew when information was made available to him which indicated that the Tahoe Valley Airport was below company minimums.

The record indicates that the procedures for reporting the Lake Tahoe weather were unsatisfactory. There was inadequate control over the transmission of weather reports from Lake Tahoe and the Oakland dispatch center. This, in turn, was reflected in inadequate transmission of Tahoe Valley Airport weather over the service "A" teletype circuit.

Icing was forecast and did exist in the Lake Tahoe area. This is substantiated by pilot reports including the report a company pilot made to the crew of Flight 901A while they were en route to Lake Tahoe. Snow showers were also forecast and reported in the Tahoe area with associated low visibility.

Most of this weather information was available to the crew while en route to the Tahoe area via the scheduled radio broadcasts the FAA makes at 15 and 45 minutes after each hour over en route navigational radio aids. Finally, the latest Tahoe Valley Airport weather was available to the crew while they were over the Tahoe VOR before they started their descent.

Although the crew indicated they were going to call the company radio station at Tahoe Valley Airport to get the weather, they were off the center frequency only about 40 seconds. Further, the company agent at the airport testified that they did not call for the weather until approximately two minutes before the crash. Therefore, it is believed that the crew had already attempted an approach at the time this call for weather was made.

The condition of the captain's altimeter, as recovered from the wreckage, indicated a pre-impact discrepancy. With the barometric adjusting screw disengaged it would have been possible for the captain to set the barometric dial of the altimeter without affecting the position of the instrument hands. If the aircraft were in a descent at this time, the failure of the rotating hands to properly reposition themselves might easily be overlooked, particularly when the captain knew that the altimeter had been sticking and then jumping the previous day. The difference between the barometric setting at San Jose and that found on the recovered altimeter would have been approximately 280 feet, and would have indicated to the pilot that the aircraft was 280 feet higher than its actual altitude.

The differences between the RMI and MDI indications and the aircraft's track during the crash suggests an error of 15 or more degrees in the compass system. If this error did exist, prior to impact, it would indicate that the aircraft's actual heading was more northerly (farther left) than the compasses indicated to the pilots. Another factor that could have affected the aircraft was the high velocity wind over the lake which would have pushed the aircraft toward the mountains at a high ground speed. There is no evidence to indicate that the crew was aware of this wind.

The installation of one fluxgate compass transmitter and the two altimeters was done by mechanics who worked without reference to available, approved maintenance manuals; the compasses were not swung, the pitot static system was not checked for leaks, and unauthorized personnel "inspected" their own work. The condition of the captain's altimeter, as recovered from the wreckage, with the barometric adjusting screw backed out, indicates that the maintenance man who checked it did not complete his work.

The flight crew's decision to proceed from the VOR to the airport either without, or despite, knowledge of the existing weather was in violation of the company's operating procedures.

If the crew were aware of the weather at Tahoe Valley Airport they should have remained at the VOR awaiting better weather or diverted to Reno. They had been

informed of the icing situation encountered by Flight 802 that had departed the airport about one hour earlier. They knew their aircraft was neither authorized nor equipped to fly in any icing condition. It is apparent that after the crew arrived in the vicinity of the Tahoe Valley Airport they were either unable to locate it or if they located it they decided not to land. The decision not to land could have been based on the weather as they observed it or on the below minimum weather reported to them at 1127 by the company agent at the airport. The dispatcher's negligence played a part in this sequence also. He did not recommend or urge a diversion of the flight to Reno when he first had the 1100 Tahoe Valley Airport weather available, shortly after 1100.

When the crew decided to abandon the approach, they took up a heading which they must have known would take them towards the high terrain east of the lake. (See Attachment No. 1.) It is very likely that from their position over the Tahoe VOR they were able to observe the VFR conditions that existed east of Lake Tahoe on the leeward side of the mountains. Additionally, it is assumed that the first officer was aware of the existence of Daggett Pass and considered it an access to VFR conditions beyond the pass. It is further assumed that he knew an altitude of 9,000 feet would provide about 1,500 feet terrain clearance through the center of the pass. Further, an easterly heading from the south end of the lake would take the aircraft through the pass which is several miles wide.

The heading and altitude suggest that the crew established an easterly heading and climbed to an altitude of 9,000 feet. Then, either because they believed they had sufficient altitude to clear the terrain or because they were unable to climb higher due to structural ice, the aircraft leveled off. At that time they struck the first trees and were unable to avoid the final impact with the mountain. Had the flight been 300 feet higher, or 300 yards farther south, they would have cleared the existing terrain and proceeded into VFR conditions. The last factor that could have affected the situation was that the crew could not accurately determine the position relative to the pass when they took up the final heading. They were in a heavy snow shower over the lake and would have had to depend on some visual observation of the east shoreline to determine their position.

The customary procedure of company pilots in getting out of the Tahoe area after abandoning the landing approach was to climb to a safe altitude and return to the Tahoe VOR, refile an IFR flight plan, and proceed to an alternate airport. The Board can assign no logical reason for the crew's failure to carry out this course of action unless it was an attempt by the crew to avoid a known area of icing through which they had let down on their descent from the VOR.

Therefore, the Board concludes that the crew was inadequately briefed on the forecast weather en route to and at the Lake Tahoe area. The crew was released for, and proceeded with, a flight on the basis of a falsified weather report. The crew made an approach to the Tahoe Valley Airport without adequate weather information or despite their knowledge of existing weather. The crew operated the aircraft in an area of forecast and reported icing without required anti-icing and de-icing equipment. And finally, the crew undertook to fly their aircraft over a mountainous area without insuring themselves of the 2,000-foot terrain clearance required by FAA regulations. The possibility exists that there was a heading error, an altimeter error, and a tail wind that had an effect on the flight which was not detected by the crew. The fact remains, however, once having decided to depart the Tahoe Airport area on an easterly heading, the accident would have been avoided had the crew climbed to an altitude of 2,000 feet above the terrain along their intended flightpath.

Probable Cause

The Board determines that the probable cause of this accident was the pilot's deviation from prescribed VFR flight procedures in attempting a visual landing approach in adverse weather conditions. This resulted in an abandoned approach and geographical disorientation while flying below the minimum altitude prescribed for operations in mountainous areas.

BY THE CIVIL AERONAUTICS BOARD:

/s/ CHARLES S. MURPHY
Chairman

/s/ ROBERT T. MURPHY
Vice Chairman

/s/ G. JOSEPH MINETTI
Member

/s/ WHITNEY GILLILLAND
Member

/s/ JOHN G. ADAMS
Member

SUPPLEMENTAL DATA

Investigation

The Civil Aeronautics Board was notified of this accident on March 1, 1964, and an investigation was initiated under the provisions of Title VII of the Federal Aviation Act of 1958, as amended. A public hearing was held at Oakland, California, June 2-4, 1964.

The Carrier

Paradise Airlines was incorporated under the laws of the State of California on June 27, 1962. At the time of the accident the carrier held Commercial Operator Certificate No. WE-56(6) issued by the Federal Aviation Agency. This certificate authorized the carrier to operate as a commercial carrier and to conduct common carrier operations carrying passengers intrastate on a scheduled basis. Under Part "A" of the Operations Specifications, the carrier was authorized to conduct scheduled intrastate operations in accordance with Part 40 of the Civil Air Regulations. Under Part "F" of its operation certificate, the carrier was authorized to conduct charter flights or other special services in accordance with the conditions and limitations prescribed in Part 42 of the Civil Air Regulations. The carrier was authorized to operate Douglas DC-3C and Lockheed L-049 type aircraft. Paradise Airlines held no certificate of public convenience and necessity issued by the Civil Aeronautics Board.

Crew History

Captain Henry Norris, age 45, was employed by Paradise Airlines on November 13, 1963, and at the time of the accident he had a total of 15,391 hours flight time, of which 3,266 hours were in Lockheed Constellation type aircraft. He held currently effective ATR FAA airline transport certificate No. 222060 with ratings airplane multiengine land; Douglas DC-3, 4, 6, and 7; Curtis Wright C-46, Lockheed 18; and Lockheed Constellation. He held commercial privileges airplane single engine land; flight engineer's certificate; and a flight instructor's rating. He also held a flight dispatcher's certificate. His last line check was on November 18, 1963. His last proficiency check in Lockheed Constellation was November 13, 1963. He had flown 113 hours in the last 90 days. His total instrument time was 1,414 hours. Records indicate that he satisfactorily passed a first-class FAA flight physical on November 2, 1963, with no limitations.

The First Officer, Donald A. Watson, age 28, was employed by Paradise Airlines March 29, 1963. He had accumulated a total of 3,553 flight hours. He held currently effective FAA commercial pilot certificate, airplane single and multiengine land, and instrument rating. His last line check was in a Lockheed L-049 on October 6, 1963, and his last 12-month check was on June 14, 1963. He had a total of 1,353 hours in Lockheed Constellation and a total instrument time of 149 hours. His flight time in the last 90 days was 182 hours. He satisfactorily passed a first-class FAA flight physical on January 16, 1963.

Flight Engineer Jack C. Worthley was employed by Paradise Airlines on October 4, 1963. He had accumulated a total of 3,700 flight hours as a flight engineer. His total time on Lockheed Constellation type aircraft was 912 hours, and he had flown 161 hours in the last 90 days. He held currently effective FAA flight engineer's certificate No. 1435910 and A&P mechanic certificate 1360480. He had

his last line check on October 4, 1963. He satisfactorily passed a first-class FAA flight physical on January 1, 1964.

Flight Stewardess Wynette A. McDowell, age 29, was employed by Paradise Airlines on June 6, 1963, and had her last line check on September 29, 1963.

The Aircraft

The aircraft was a Lockheed Constellation L-049, N86504, serial No. 2025, manufactured in December 1945. At the time of the accident the aircraft had accumulated a total flying time of 45,629 hours, and had flown 104 hours since its last major inspection. The aircraft was owned by Nevada Aeromotive Corporation of Burbank, California, and was leased to Paradise Airlines, Inc., on June 7, 1963. Paradise Airlines, Inc., had operated the aircraft 551 hours.

The Powerplants

The aircraft was equipped with four Wright R-3350 engines model 745 C18 BA3/4, and four Hamilton Standard propellers model 43E60 equipped with model 6801A-0 propeller blades. Total time (TT) and time since overhaul (TSO) were:

Engines	TT Hours	TSO Hours
1	20,100	448
2	26,121	1,296
3	30,574	764
4	28,948	433
Propeller hubs:		
1	6,611	1,825
2	5,851	1,573
3	6,583	1,301
4	6,829	839

All propeller blades were last overhauled at the indicated propeller hub TSOs.

WITNESS
FLIGHT PATH CHART

LTA OMNI
113.2

Approximate wind
260° 40-50 kts
Temp. 32
Dew Pt 32

KTHO, 590 kcs.

KOWL,
1490 kcs

Tahoe Valley Airport
Elev. 6,263'

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