

CIVIL AERONAUTICS BOARD
ACCIDENT INVESTIGATION REPORT

Adopted: June 17, 1952

Released: June 23, 1952

TRANSOCEAN AIR LINES, - TUCUMCARI, NEW MEXICO, NOVEMBER 5, 1951

The Accident

Transocean Air Lines' Flight CAM5763, a Martin 202, N-93039, crashed at 0929,^{1/} November 5, 1951, near the northeast end of Runway No. 21 of the Tucumcari Airport, Tucumcari, New Mexico. Of the 29 occupants, one was fatally injured, five were seriously injured, and numerous others received minor injuries. The aircraft was destroyed.

History of the Flight

Flight CAM5763, a military contract flight, originated in Oakland, California, with Indiantown Gap, Pennsylvania, as its destination. It was scheduled to depart Oakland, California, at 0200, November 5, 1951, but due to a mechanical delay, departure was not made until 0352. The crew consisted of Captain Alec S. Hamilton, Copilot Henry N. Ingram, and Stewardess Frances B. Reilly. There were 26 passengers on board. The IFR (Instrument Flight Rules) flight plan filed with the CAA prior to departure indicated that the first intended landing would be Albuquerque, New Mexico, with Tucumcari, New Mexico, as the alternate. It showed a cruising altitude of 500 on top and an estimated time to Albuquerque of four hours and five minutes, with six hours and fifteen minutes of fuel on board. At the time

^{1/} All times referred to herein are Mountain Standard and based on the 24-hour clock.

of departure the aircraft weighed 38,939 pounds, which was within the allowable gross takeoff weight of 39,900 pounds; the load was properly distributed.

The company maintains a dispatching office at Oakland to assist crews in planning flights, but it has no communications facilities for maintaining flight supervision. Company pilots are authorized to act as their own dispatchers, utilizing the CAA Communications facilities for the purpose of flight control.

Captain Hamilton stated that prior to departure he was briefed by the U. S. Weather Bureau forecaster at the Oakland Airport on the en route weather and forecasts. Weather information available to the captain at this time indicated that there would be VFR (Visual Flight Rules) flying weather between Oakland and Albuquerque, at a cruising altitude of 11,000 feet, and that helping winds averaging 15 to 20 knots could be expected along the entire route. The forecast for Tucumcari, the alternate airport, indicated clear weather until 0500, followed by an overcast, with a ceiling of 800 feet and surface winds from the northeast at 15 miles per hour.

The flight was routine and on reaching Acomita, New Mexico, at 0755, reported that it was 500 on top at 12,000 feet and was estimating Albuquerque at 0811. Following this report the flight asked to change its flight plan to Tucumcari with Amarillo, Texas, the alternate, and requested the latest Tucumcari weather which was: 0728, overcast, 1500 feet, visibility 20 miles, wind northeast 20 mph; Amarillo, 0728, broken clouds 1700 feet, overcast at 3500 feet, visibility 8 miles, wind north-northeast, 17 mph. The flight passed over Albuquerque under broken clouds in the clear at 12,000 feet MSL

at 0813, whereupon the following clearance was given: "ARTC (Air Route Traffic Control) clears CAM 5763 to the Tucumcari Airport via Green Airway No. 4, to maintain 500 on top while in the control area." This clearance was acknowledged. At 0831, the flight reported being over Anton Chico, New Mexico, at 13,000 feet, estimating Tucumcari at 0852. At this time the 0828 Tucumcari weather was given the flight as: ceiling estimated 1,000 feet, overcast, visibility 3 miles, snow and fog.

At approximately 0845, Tucumcari radio gave CAM5763 the following clearance: "ARTC clears CAM5763 to descend to 8,000 feet on the south course of Tucumcari range, maintain 11,000 feet until 2 minutes south, descend outbound, maintain 8,000, report leaving 9,000." The following clearance was transmitted to the flight by Tucumcari radio at 0851: "ARTC clears CAM5763 to approach Tucumcari Airport on reaching 8,000 feet."

The flight next reported being over the Tucumcari range station at 0852, at 11,000 feet, descending to 8,000 feet, and at 0901 reported that it was at 9,000 feet outbound on the south leg of the Tucumcari range. At this time the special 0852 Tucumcari weather report was given the flight: "Ceiling 800 feet, overcast, visibility one mile, light snow and fog, wind north 20 miles per hour with strong gusts." The reported surface visibility in this official weather report was less than the CAA and company minimums of $1\frac{1}{2}$ miles for the Tucumcari Airport.

At 0907 CAM5763 was given the following clearance: "ARTC clears 5763 to make standard instrument approach." The Amarillo weather was then given as: ceiling estimated 1,000 feet, broken clouds, overcast 2,000 feet; visibility 5 miles, light snow and fog. The flight was asked if it wished to proceed to Amarillo and it replied that it had to land at Tucumcari. The

flight continued its descent and at 0909 was advised by Tucumcari radio that the Tucumcari weather was then ceiling 800 feet, overcast, visibility 1/2 mile, light snow and fog, wind north 20 miles per hour. Two minutes later, at 0911, the flight reported it was outbound on the west leg at 8,000 feet, descending to 6,000 feet. Tucumcari radio again gave the flight the weather which had been given it at 0909. One minute after this transmission Tucumcari radio gave the flight the wind direction which was then north-northwest, variable to north-northeast, at 16 miles per hour, and advised that Runway 30 was the runway in use. CAM5763 immediately requested the bearing of this runway and this was corrected to 03, which was acknowledged by the flight. At 0915 CAM 5763 reported that it was at 6,000 feet and inbound on the west leg of the Tucumcari range. Immediately following this report, at 0916, Tucumcari radio asked the flight if it wanted ARTC to recommend an alternate airport closer than Amarillo. The flight acknowledged this and advised it would have to land at Tucumcari but asked where the alternate would be. The pilot was advised to stand by and, according to the communicator on duty, the aircraft was then seen to cross the field in a northwesterly direction at very low altitude. The pilot was quickly advised to pull up and answered that he was doing so. At 0925, the flight advised it was landing downwind. This was the last report received from the flight. After several passes over the airport at altitudes varying from 500 feet to as low as 50 feet, the aircraft crashed near the northeast end of Runway 21 at approximately 0929. A flash fire which occurred immediately after impact quickly subsided. The passengers were evacuated as rapidly as possible.

Investigation

Examination of ground marks showed that first contact with the ground of was made by the left wing tip when the aircraft was on a heading/approximately

210 degrees. These marks were observed at a point 630 feet from the approach end of Runway 21. After striking the ground the aircraft traversed a distance of 114 feet where the nose wheel, left wing, and left propeller struck the south bank of an irrigation ditch. It then skidded in a south-westerly direction, pivoted on the left wing, and turned left approximately 160 degrees, coming to rest 114 feet from the end of the runway and slightly to the right of it. Traces of fire were noticed along the first 125 feet of the skid path.

The left wing and left fuel tank were destroyed. The right wing did not touch the ground and showed no apparent evidence of structural distortion. The right wing flaps were 28 degrees down and the aileron tab was in the neutral position.

The empennage was intact with the rudder and vertical fin undamaged. Both ends of the horizontal stabilizers were crushed and bent upward; the elevators were damaged.

The fuselage was badly crushed, torn and broken. It was severed almost completely at station 243, just to the rear of the galley section, and was held to that section merely by cables, tubing, etc. An additional diagonal break from right to left occurred in the fuselage from station 486 on the right side to station 558 on the left side. This break almost completely separated the fuselage from the tail section.

The nose gear and left main landing gear were torn from the aircraft and badly damaged. The right main landing gear was locked in the down position and received very little damage.

The left engine was torn from its nacelle forward of the firewall and was found adjacent to station 558 of the fuselage. The hub of this engine's

propeller was shattered and the blades were broken and scattered in the wreckage area. The right engine, attached to its nacelle, was not badly damaged. The blades of its propeller were twisted and broken. An examination of the propeller dome assemblies of both propellers showed that their respective propeller blades were set in full low pitch position at impact. The appearance of the right propeller hub and the blades of both propellers indicated that both engines were delivering power at impact.

The right-hand fuel selector valve was in the OFF position. However, the fuel selector valve control handle, which is located in the cockpit, was found in the cross-feed to right engine position. The left-hand selector valve was found approximately 100 feet from the main wreckage. This valve was in position midway between the OFF and left-hand tank to engine position. The cockpit selector valve control handle for this valve was found in the left-hand tank to engine position.

The CO₂ bottles had not been discharged although the arming switch to discharge these bottles was found in the ON position.

Examination of the wreckage did not disclose any evidence of structural failure or malfunctioning of the engines, aircraft, or its components prior to impact with the ground.

An examination of the aircraft's records indicated that it was in an airworthy condition at the time of departure from Oakland. Moreover, the crew testified that the aircraft functioned normally during the entire flight.

The right fuel tank was drained and it contained 66 gallons of fuel.

An aftercast of the weather on the morning of November 5, 1951, disclosed that there was a low pressure area in eastern New Mexico and western Texas with a cold air mass to the northeast. This cold air mass was pushing

southward east of the Rocky Mountains and was blocked by the mountains in that area from extending westward. Following the invasion of this cold air, winds in this area became northeasterly and the air mass was lifted due to up-slope flow. This resulted in the formation of stratus clouds which was later followed by light precipitation. A similar weather condition had occurred in eastern Colorado and western Kansas during the preceding 24-hour period. The stratus overcast was first observed at Tucumcari at 0325 on November 5, and at 0804 light snow began falling in that area. The overcast reached Amarillo at 0529 and light snow began falling there at 0850. The above-mentioned air mass accompanied by its low stratus clouds and snow did not cross the mountains into the Albuquerque area.

When the pilots received their weather briefing from the U. S. Weather Bureau forecaster at Oakland, at approximately 0215, November 5, 1951, they were advised that VFR weather conditions would prevail from Oakland to Albuquerque at the cruising level of 11,000 feet MSL. They were also given the current forecasts for Tucumcari and Amarillo. These forecasts indicated that clear weather would prevail at Tucumcari until 0500 after which time there would be an overcast with a ceiling of 800 feet and wind from the northeast at 15 miles per hour. The forecast for Amarillo from 0000 to 1000 indicated an overcast with a ceiling of 700 feet, with winds east-southeast at 15 miles per hour and occasional light drizzle. The pilots were further advised they could expect helping winds at cruising altitude which would average 15-20 knots over the entire route.

New forecasts for Tucumcari and Amarillo were subsequently issued and transmitted over the CAA teletype system at about the time the flight departed from Oakland. These indicated that for both these places between

the hours of 0700 and 1200 there would be an overcast with a ceiling of 2,000 feet, with wind from the northeast at 20 miles per hour and gusty, with occasional freezing drizzle and icing in the precipitation. A short time later the weather forecaster on duty at Albuquerque amended this last forecast as follows: Tucumcari, 0630 to 0730, overcast, ceiling 2000 feet, wind northeast 25 mph, gusty, occasional light rain or light snow; 0730 to 1400, overcast, ceiling 600 feet, visibility 2 miles, light snow, wind northeast, 25 mph, gusty, intermittent freezing drizzle, ceiling occasionally becoming 400 feet, sky obscured, visibility one mile; Amarillo, 0630 to 0800, scattered clouds at 700 feet, with overcast 3000 feet, wind northeast 25 mph, gusty, occasional freezing drizzle or snow; 0800 to 1400, overcast at 600 feet, visibility 3 miles, light snow, wind northeast 25 mph, gusty, intermittent freezing drizzle, ceiling occasionally lowering to 300 feet, sky obscured, visibility one mile.

The above amended forecasts were made available to Air Route Traffic Control at Albuquerque prior to 0700. At the time the flight was in the vicinity of Acoma and requested a change in the flight plan, these forecasts were available to Air Route Traffic Control, but ARTC personnel did not give them to the flight because it did not ask for them.^{2/} However, the flight,

^{2/} Section 60.11 of the Civil Air Regulations, provides that:

PREFLIGHT ACTION. Before beginning a flight, the pilot in command of the aircraft shall familiarize himself with all available information appropriate to the intended operation. Preflight action for flights away from the vicinity of an airport, and for all IFR flights, shall include a careful study of available current weather reports and forecasts, taking into consideration fuel requirements, an alternate course of action if the flight cannot be completed as planned, and also any known traffic delays of which he has been advised by air traffic control.

at this time, did ask for and receive the latest sequence and special weather reports for the terminals Tucumcari and Amarillo.^{3/}

When the flight reached the vicinity of Albuquerque the weather there was: thin broken clouds at 14,500 feet, visibility 50 miles, and wind northwest at 20 miles per hour.

Captain Hamilton stated that this was his first flight with Copilot Ingram. He said that to the best of his knowledge he had the latest en route weather information at the time of departure from Oakland and that both he

3/ Civil Aeronautics Administration and Weather Bureau - Standard Procedures for Flight Assistance Service, June 1, 1948, provides as follows:

1.0 Purpose of Flight Assistance Service: Flight Assistance Service is a service rendered to pilots of aircraft for the purpose of assisting them in the conduct of safe flight from the standpoint of known flight conditions.

2.1 Responsibility of Flight Assistance Service Personnel: Civil Aeronautics Administration and U. S. Weather Bureau facilities rendering flight assistance will not be held responsible for the initiation of flight assistance service in each instance, but it is expected that every effort will be put forth to provide flight assistance. When flight assistance service is rendered, responsibility for action taken is defined in the following paragraphs.

2.2 Air Route Traffic Control Centers: Air route traffic control centers shall be responsible for the issuance of flight assistance information suggestions and advice to the following classes of aircraft operating on IFR flight plans:

- (a) Civil, other than scheduled air carrier;
- (b) Public, other than military aircraft;
- (c) Any aircraft upon request.

2.20 In cases where air carrier aircraft are proceeding into an actual or potentially hazardous condition the company should be advised. In cases where company personnel are not readily available or when delay would add to the hazard the information should be transmitted to the pilot.

4.21 When a flight contacts a communications station, the destination of the flight shall be ascertained, if not already known. The communicator shall then take the initiative in providing any flight assistance information that the communicator considers will aid the pilot.

and Copilot Ingram listened to the periodic weather broadcasts throughout the flight. The captain said that when the flight arrived in the vicinity of Acomita he decided not to land at Albuquerque but to continue to Tucumcari. Although the weather was CAVU (ceiling and visibility unlimited) at Albuquerque, he felt that the weather at Tucumcari would permit a safe landing; and that by passing up Albuquerque in favor of Tucumcari, it would be necessary to make only one re-fueling stop prior to reaching Kansas City, Missouri; and should the weather not be good on his arrival at Tucumcari, he could return to Albuquerque or continue to his alternate, Amarillo.

Furthermore, the captain said that upon arriving at Tucumcari he continued his approach according to ARTC instructions and that he did not hear the weather information which was transmitted to the flight at 0901. (This report indicated that the surface visibility at Tucumcari was below the flight's landing minimums of $1\frac{1}{2}$ miles.) He stated that after visual contact was established and until the crash occurred, the forward visibility was always 3 miles or better. This statement was later contradicted when he said that on approaching the airport to land on Runway 3, he misjudged the distance and came upon it too rapidly, and since there was an aircraft standing adjacent to the approach end of the runway, he decided not to land. (Pioneer Air Lines' Flight 62 was near, but clear of the end of Runway 3, awaiting clearance to depart for Clovis, New Mexico.) The flight then continued across the airport to the right of Runway 3 and when nearing the opposite end of the airport it executed a right 270-degree turn. This brought the aircraft back across the middle of the airport in a northwesterly direction and when reaching the end of the airport a 270-degree left turn was made to again align with Runway 3. Captain Hamilton said that because of a snow flurry, which

momentarily obscured his visibility he again approached the runway too quickly and too high to effect a safe landing. Therefore, he continued across the airport and nearing the opposite end of the runway turned to the right 45 degrees and then executed a left turn of about 225 degrees to align with Runway 21. It was during this turn that the aircraft crashed.

The captain said he did not intend to land downwind on Runway 21 but that an unusual turbulent condition, which he described as a roll cloud, almost turned the aircraft upside down, also, that the passes across the field were made at an altitude of 400 feet or higher and in accordance with his planning. An emergency was not declared, he said, because he did not think it necessary and he did not execute a missed-approach procedure because he thought he could land safely. The direction and number of the passes made across the airport did not agree either in direction or number with those observed by competent witnesses on the ground. These witnesses, some of whom were pilots, said that some of the passes were made at a much lower altitude than 400 feet, and that when the accident occurred the surface visibility was so bad because of blowing snow that it was impossible to determine exactly where the aircraft had crashed.

Copilot Ingram said that when in the vicinity of Tucumcari the captain was flying and that he did not touch the aircraft's controls; also, that after contact was established near the airport he devoted the majority of his attention to the aircraft's instruments and did not attempt to observe objects on the ground. He said, however, that at times the visibility was so poor that he thought an attempt to land under such conditions was extremely hazardous, and that when the passes were made across the airport the aircraft at one time was approximately 50 feet above the ground, and the air speed varied

between 125 and 95 miles per hour. Copilot Ingram said that he was unable to see objects on the ground clearly as all turns were made to the left and the captain's head and shoulders obstructed his visibility; also, that moderate turbulence was experienced and that the aircraft shuddered and stalled in the turn immediately before it crashed.

When the aircraft departed Oakland there were 1010 gallons of fuel on board. In planning his flight and determining the number of fuel flying hours, the captain allowed for a fuel consumption of 20 gallons for taxiing and engine run-up and 154 gallons per hour for the remainder of the flight. The estimated fuel consumption of 154 gallons per hour included takeoff, climb, level flight and descent. Using these figures, at the time of takeoff there should have been 990 gallons of fuel on board. The time in flight from takeoff to the crash was five hours and 37 minutes, during which time 870 gallons of fuel should have been consumed, leaving a total of 120 gallons. However, according to the Aircraft Flight Manual, five gallons of fuel in each tank were unusable; also, by conservative estimate, $12\frac{1}{2}$ gallons of fuel would have been consumed by cabin heaters and wing heaters, etc., during the flight. By deducting these amounts from the 120 gallons mentioned above, a total of $98\frac{1}{2}$ gallons of usable fuel should have been on board at the time of the accident.

According to Civil Air Regulations, a pilot flying in accordance with Instrument Flight Rules must have sufficient fuel on board the aircraft at the time of departure to fly to his destination, then to his alternate, and then to fly for 45 minutes thereafter at normal cruising consumption.^{4/}

^{4/}CAR 42.52 Fuel Supply. (a) ... (3) No flight in large or small aircraft under IFR shall be started unless, considering the factors set forth in subparagraph (1), sufficient fuel and oil are carried aboard the aircraft (i) to reach the point of intended landing, (ii) thereafter to fly to the alternate airport, and (iii) thereafter to fly for a period of 45 minutes at normal cruising consumption.

Amarillo, the alternate airport chosen for this flight, is 108 miles from Tucumcari. Using an average ground speed of 230 miles per hour, it would take 28 minutes to fly this distance, during which time 74 gallons of fuel would be consumed, and to fly 45 minutes thereafter would require an additional 116 gallons. Under the conditions specified and with a fuel consumption as described by the captain, there was sufficient fuel on board when the aircraft passed over the Tucumcari Range Station at 0852, to proceed to and effect a safe landing at Amarillo, the alternate.

When Transocean Air Lines obtained its Martin 202 aircraft from Northwest Airlines, Captain Hamilton was one of the Transocean pilots selected for training on this equipment. He attended the Northwest Airlines training school for Martin 202s where he completed both ground and flight courses. This training, which included 10 hours and 47 minutes of flight time, was completed on March 26, 1951. After returning from the school, Captain Hamilton instructed other Transocean pilots on these aircraft for a total of eight hours and 44 minutes. Following this he was assigned to regular flying duties and at the time of the accident had accumulated a total of 261 hours in this type aircraft.

Copilot Ingram successfully completed 17½ hours of ground school training on October 10, 1951, and on the same date was given a flight check on Martin 202s. This check consisted of 30 minutes of air work and three takeoffs and landings.

Analysis

When the flight was in the vicinity of Acomita, Captain Hamilton decided to proceed to and land at Tucumcari. According to the captain, he had originally decided to pass up Albuquerque if conditions made this possible, since a landing at Tucumcari would necessitate only one re-fueling stop before reaching Kansas City. At the time the new clearance was requested, the weather

at Albuquerque was CAVU. Although the Tucumcari ceiling at this time was reported to the flight as 1,500 feet, it had lowered appreciably since the flight's departure from Oakland some 4 hours earlier and the trend was downward. This trend, of which the crew was aware, was apparent from the routine weather reports broadcast twice hourly during the flight eastward. The latest forecasts also indicated a downward trend. Captain Hamilton should have asked ARTC for these forecasts. In failing to do this, he demonstrated poor judgment in planning the extension of his flight as well as not complying with Section 60.11 of the Civil Air Regulations. Likewise, Air Route Traffic Control at Albuquerque having knowledge of the importance of these forecasts, should have acquainted the captain with this information. In this respect the Board can only be guided by its interpretation of the duties and responsibilities of the Civil Aeronautics Administration and Weather Bureau as set forth in their "Standard Procedures for Flight Assistance Service" Manual. The Manual states that such instructions are purposely written in general terms to allow sufficient freedom of action to accomplish the mission at hand. While it is solely the pilot's responsibility to properly plan his flight in order that it may be safely concluded, each person engaged in the service (Flight Assistance Service) should readily recognize and exercise his individual moral responsibility to furnish the maximum possible assistance to airmen. Therefore, while we must censure the captain for faulty planning of his flight on reclearance over Acoma, Albuquerque ARTC must also be criticized for not furnishing the flight complete weather information.

Despite this, however, Captain Hamilton was aware and forewarned by the latest sequence and special weather reports that the visibility conditions at Tucumcari were rapidly deteriorating as the flight neared that station.

During the early part of the descent to Tucumcari, 28 minutes prior to the accident, weather information transmitted to the flight indicated that the surface visibility was below the company's allowable landing minimums. The captain said that he did not receive this message. Eight minutes later, another message was transmitted to the flight indicating that the visibility was even lower. Again the captain said that he did not receive the message. Since the flight was in normal communication with the Tucumcari communications station during the descent, it is not reasonable to accept the captain's statement that he did not receive the 0901 weather report transmitted to the flight. This was further substantiated by the fact that the communicator on duty stated that when the 0909 weather report was given it, etc., this was answered by, "Roger, have runways in sight." The copilot testified that he heard the Tucumcari weather transmissions but was not sure as to times. Therefore, it is evident that Captain Hamilton showed complete disregard of both CAA and company minimums, as well as a total lack of consideration for the safety of his passengers. Again, the Board must severely censure the captain for his failure to request the Tucumcari weather conditions upon arrival over the range station, and his failure to proceed to Amarillo, his alternate, when he received information which showed that the conditions were below landing minimums.^{5/} At this time there was ample fuel aboard to follow this course of action.

^{5/} Civil Air Regulations, Part 42.56 - Instrument Approach.

No instrument approach procedure shall be executed or landing made at an airport when the latest U. S. Weather Bureau report for that airport indicates the ceiling or visibility to be less than that prescribed by the Administrator for landing at such airport.

The captain stated that after he became contact the visibility from the cockpit was always three miles or better. This, however, is contrary to the copilot's statement, since he said that he was considerably concerned during the attempts to land because of a lack of visibility. Their testimony again differed as to altitudes and air speeds flown. Under these conditions it is hard to comprehend why the captain did not abandon his initial attempt to land, execute a missed-approach and proceed to his alternate. Even at this time there was sufficient fuel aboard to proceed and effect a safe landing at Amarillo. Captain Hamilton's only excuse for not going to his alternate was that he had three miles visibility and that he considered it safe to land.

In view of the testimony of competent witnesses, the Board can attach no credence to the captain's statements. He flew across the airport several times at a very low altitude and in a reckless manner which indicated his obvious determination to land.

Although Captain Hamilton stated that during the final turn the aircraft was partially turned over by what he described as a roll cloud, it is highly probable that while flying at a low altitude he shortened the radius of the turn in an effort to keep the runway in sight, and the aircraft slipped downward, striking the ground on its left wing. Both engines were delivering power when the accident occurred.

As a result of this accident the company, on February 4, 1952, reduced Captain Hamilton to copilot status. The Civil Aeronautics Administration instituted action against Captain Hamilton in the form of a complaint filed with the Civil Aeronautics Board, April 25, 1952, asking for suspension of his airman certificate on the grounds of careless and reckless operation of an aircraft.

Findings

On the basis of all available evidence the Board finds that:

1. The carrier, the crew, and the aircraft were properly certificated.
2. The flight was routine until it arrived in the vicinity of Acoma, New Mexico, where the captain elected to change the existing flight plan and land at Tucumcari, with Amarillo as the new alternate.
3. The weather at Albuquerque at that time was CAVU, whereas the weather at Tucumcari at the estimated time of the flight's arrival there was forecast to be marginal.
4. Prior to the change in flight plan the captain did not ask for new terminal forecasts as required, nor were they volunteered by Flight Assistance Service.
5. During the approach to Tucumcari the surface visibility was transmitted to the flight as one mile and eight minutes later, one-half mile; the company's prescribed visibility minimum is $1\frac{1}{2}$ miles.
6. The captain did not execute a missed-approach and proceed to the alternate, but continued his attempts to land.
7. Control of the aircraft was lost during a steep turn, and the left wing struck the ground.
8. There was no malfunctioning of the aircraft or any of its components prior to impact.

Probable Cause

The Board determines that the probable cause of this accident was the captain's attempt to land during less than minimum visibility, rather than proceed to his alternate.

BY THE CIVIL AERONAUTICS BOARD:

/s/ DONALD W. NYROP

/s/ OSWALD RYAN

/s/ JOSH LEE

/s/ JOSEPH P. ADAMS

/s/ CHAN GURNEY

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

Investigation and Hearing

The Civil Aeronautics Board was notified at 1200, November 5, 1951, of the occurrence of this accident through the facilities of the Civil Aeronautics Administration at Fort Worth, Texas, and an investigation was immediately initiated in accordance with the provisions of Section 702 (a)(2) of the Civil Aeronautics Act of 1938, as amended. In connection with the investigation a public hearing was held at Albuquerque, New Mexico, on December 5 and 6, 1951.

Air Carrier

Transocean Air Lines, a large irregular air carrier, is a California corporation, with its principal offices at the Oakland Municipal Airport, Oakland, California. The company possesses a letter of registration issued by the Civil Aeronautics Board and an operating certificate issued by the Civil Aeronautics Administration for operations over the route involved.

Flight Personnel

Captain Alec S. Hamilton, age 43, was employed by Transocean on September 24, 1947. He held a valid airman certificate with an airline transport rating, both single and multi-engine, and had a total of 7,963 flying hours, of which 261 were in Martin 202 aircraft. His last instrument check was accomplished July 11, 1951, and his last en route check was made on August 29, 1951. Captain Hamilton successfully passed his CAA physical examination on July 27, 1951.

Copilot Ingram, age 32, was employed by Transocean on October 10, 1951. He held a valid airman certificate, with commercial, single and multi-engine

land, and instrument ratings, and had a total of 1,300 flying hours, of which 13 were in Martin 202 aircraft. He received his instrument rating August 16, 1951, and accomplished his last en route check October 21, 1951. He satisfactorily passed a second-class CAA physical examination February 16, 1951.

Stewardess Frances B. Reilly was employed by Transocean on September 24, 1951.

The Aircraft

N-93039, a Martin 202, was owned by Northwest Airlines, Inc., and operated under lease by Transocean Air Lines. It had a total of 6,790 flying hours and was currently certificated by the Civil Aeronautics Administration. The aircraft was equipped with two Pratt & Whitney R-2800-CA18 engines and Hamilton Standard hydromatic propellers.