

CIVIL AERONAUTICS BOARD

ACCIDENT INVESTIGATION REPORT

Adopted: March 11, 1952

Released: March 14, 1952

**PAN AMERICAN WORLD AIRWAYS, INC., KINGSTON, JAMAICA,
SEPTEMBER 2, 1951****THE ACCIDENT**

At approximately 1010 EST,¹ September 2, 1951, a Pan American World Airways' Convair 240, N 90662, being operated as Flight 507 between Miami, Florida, and Maracaibo, Venezuela, crashed in the water at Kingston, Jamaica, about 800 feet short of the approach end of Runway 14, the point of intended landing. The 29 passengers, including one infant, and the crew of four all escaped serious injury. The aircraft was demolished by impact and salvage operations.

HISTORY OF THE FLIGHT

Flight 507 departed Miami, Florida, at 0700, September 2, 1951, and made a routine scheduled stop at Camaguey, Cuba. No irregularities were reported by the flight crew upon arrival at Camaguey, and the flight departed there on schedule at 0900, cleared under visual flight rules direct to Kingston, Jamaica, with Montego Bay, Jamaica, as an alternate. The gross weight of the aircraft and distribution of the disposable load were within allowable limits upon departure from Camaguey.

The flight was uneventful between Camaguey and Kingston, and routine radio contacts were made en route. At 1003 Flight 507 reported its position to Palisadoes Airport Tower, Kingston, as 20 miles north and a little later was cleared into the traffic pattern for Runway 14. The flight acknowledged this clearance and shortly thereafter reported that the field was in sight. Palisadoes Tower then advised Flight 507 of the presence of a local squall between Kingston and the approach end of Runway 14, with heavy rain at the airport, and suggested a low approach.

When the aircraft first came into view of the air traffic controller, it was just

emerging from the heavy part of the squall, which was then over the approach end of Runway 14 and moving northwesterly. At this time the flight requested and received permission to circle the airport to the right. Witnesses located near the approach end of Runway 14 observed the aircraft flying in a southeasterly direction, paralleling the runway. At approximately the runway intersection,² the aircraft turned right and continued around the airport to a point northwest of the approach end of Runway 14 and over Kingston Harbor, here it was observed to descend into the water about 800 feet short of the runway. No one was seriously injured.

A motor launch from a nearby salvage vessel arrived alongside the wrecked aircraft in a matter of minutes and took the survivors ashore. The wreckage floated for a short time, then sank, leaving only a part of the tail group and one wing visible above the surface of the water.

INVESTIGATION

Initial contact with the water resulted in the right wing being torn from the fuselage at the wing root, and the nose section and cockpit structure breaking off at the front entrance door frame located on the right side of the fuselage. This nose section went to the bottom in 20-odd feet of water, the captain and the copilot were able to extricate themselves, however, and reached the surface without injury. Before the fuselage became fully submerged, all passengers either made their way forward into the water through the opening created by the missing nose section, or back and out through the emergency rear door. One life raft had been inflated and several passengers placed aboard before the arrival of the

¹All times referred to herein are Eastern Standard and based on the 24-hour clock

² See Appendix A

motor launch from the salvage vessel Cable, which was engaged in a dredging operation approximately 1,500 feet from the scene

The wrecked aircraft sank to the muddy bottom of Kingston Harbor in about 24 feet of water with the outboard half of the left wing, the left stabilizer and elevator, the rudder, and the upper portion of the vertical stabilizer remaining above the surface of the water

Salvage equipment at Kingston was extremely limited. Also, due to the ravages of a severe hurricane which had passed through Kingston on August 17, 1951, there was no telephone service available, and other communications, electrical power, and transportation were greatly restricted. This not only delayed the preparations for salvage operations, but made such operations very difficult. However, the major portion of the wreckage was eventually raised, placed on a barge, and towed to the airport dock, where it was thoroughly examined. Meanwhile, a vessel equipped with grappling hooks dragged the area in an attempt to locate missing parts of the aircraft. Dredging operations were suspended temporarily to permit the murky water to clear, after which two professional divers with special equipment were flown in from Miami and their services were utilized October 4 through October 8. The combined salvage operations resulted in recovery of the major portion of the aircraft. Those parts not recovered consisted of the right engine, much of the right nacelle, approximately two-thirds of the right wing including a section between the fuselage and the nacelle, approximately one-half of the right flap, and approximately one-half of the right aileron.³

Among the items of immediate interest recovered were two of the four right flap tracks and carriages (Nos 1 and 3), and the right engine nose section with the propeller attached. These indicated, respectively, that the right flap was extended to the 33° position and the right propeller was in low pitch at the moment of impact. Prior to the beginning of any salvage operations, the left wing, which was intact, was examined. This examination revealed that the left flap was also extended to the 33° position and the left propeller was in low pitch. A thorough examination of all parts recovered failed to reveal any evidence whatever of malfunctioning of the aircraft or any of its components.

Copilot Wright's statement (written in the third person) concerning his initial approach to the airport reads as follows: "The Copilot descending VFR, crossed the Bay towards the radio range and proceeded to Palisades Airport, dropping 15° flap en route. He rounded the squall-area to the southwest and found himself too close in to attempt a landing." He states he then flew parallel to Runway 14, in the meanwhile requesting and receiving permission for a right-hand turn and clearance to land.

From the testimony of the captain and copilot, it would appear that the flight never entered the squall area on initial approach to the airport. Several passengers, however, stated that the aircraft passed through heavy rain on this initial approach. Furthermore, the air traffic controller on duty at the time stated that at 1005 he requested the flight's position and was advised that it was just coming over the ridge and had the city in sight. The controller further states, "A few minutes later when I had 507 in sight he was then approximately one-half mile away and was just breaking through the heavy part of the squall which was over the end of Runway 14."

Not only does the testimony of Captain Olsen disagree on several very important points with that of Copilot Wright as to what occurred between the time the aircraft rolled out on to final and the impact with the water, but their version of the last phase of the flight is in general conflict with the testimony of all ground witnesses interviewed and with statements submitted by several passengers as well.

The following is quoted from Copilot Wright's statement concerning events immediately preceding the crash: "The final then entered, Copilot stopped turning and called for full flap. Runway was ahead and at a fairly steep angle. Power was then reduced to approximately 28 ins mercury. Copilot checked air speed at 120 knots and altitude at 400 feet. He then looked across to the Captain's side of the aircraft and checked the power. Upon checking the runway again, the Copilot noticed that the aircraft had entered a right spiral descent. Attempt was made to right the aircraft with aileron and elevator. No abnormal control pressures were felt by the Copilot. Captain Olsen, noticing the Copilot's difficulty, attempted to help right the aircraft. Aircraft

³ See Appendix B

continued to descend and entered the water right wing first "

When asked the approximate angle of right bank at the moment of impact with the water, he replied, "45 to 50 degrees " When asked how far from the approach end of Runway 14 did he make his turn on to final, he replied, "1,500 feet " He further stated that no attempt was made to reduce power, which at the time was 2600 rpm and 28 inches of mercury, before striking the water The aircraft was closely aligned with the centerline of Runway 14 extended and a survey showed that when it sank, the nearest part of the aircraft was 798 feet from the end of the runway

When Captain Olsen was asked if he concurred with the copilot as to the attitude of the aircraft just before striking the water, he replied, "Well, I don't concur with his attitude there I assumed it was in a more level position—just before contact * * * when I eventually got on the controls, as I say, the aileron had been at full travel—full travel had been accomplished—and there was no bringing the right wing up, and the only other recourse was to flatten it, which we accomplished with the remaining back pressure " When asked how far from the approach end of Runway 14 the turn on to final was started, he replied, "in the neighborhood of 3,000 feet, possibly more, because we were traveling at the rate of 125 knots there, and we ended up, I believe, at 800 feet "

Both the captain and the copilot were in substantial agreement that the altitude when turning on to final was between 400 and 500 feet and the air speed was 120 knots, light rain was encountered, and the windshield wipers were turned on, visibility was not restricted between the flight and the airport, and no turbulence was encountered during any portion of the landing approach

Seven of the ground witnesses were part of the crew of the Cable, a salvage vessel operating approximately 1,500 feet from the scene of the accident By the nature of their occupation, these men are well qualified to judge distances, speeds, and angles Their testimony was in general agreement that the aircraft was in an almost continuous descending turn from the downwind leg until impact with the water, and that the bank was steepened during the final portion of the turn to line up with the runway Altitude estimates for the approximate point where

this increased bank began range from a minimum of 60 feet to a maximum of 200 feet

One of these witnesses, a former naval aviation metalsmith who was standing in the motor launch that later picked up the survivors, stated, "I saw the plane approach from the SW and as the plane passed the end of the runway she started almost a 40-45° bank to right and descending slowly at the same time When the plane was off the end of the runway and still in a turn she seemed to slip right wing down toward the water When the right wing hit the water the bank was less than 40° almost 10° bank The right wing hit first, then the landing gear hit after she had skipped a little bit, then the nose hit the water * * *." This estimate of the aircraft's attitude at impact coincides with the captain's testimony that he believed the aircraft at impact was much closer to level than was estimated by the copilot Several of the passengers stated they thought a landing had been made on the airport until they saw water coming into the aircraft

ANALYSIS

Consideration of all known factors pertinent to this accident leads to the conclusion that there are only two possible explanations for its occurrence—either there was a sudden malfunctioning of the aircraft which rendered it uncontrollable at a critical point in the approach, or there was a serious error in judgment and flying technique Since the physical evidence indicated no malfunctioning and no malfunctioning was reported by either the captain or the copilot, it appears that this first possibility can be eliminated

Assuming the situation after turning on to final to be as described by the copilot—air speed 120 knots, altitude 400 feet, 1,500 feet from the approach end of the runway—a descent of approximately 7,000 feet per minute would have been required to put the aircraft into the water 800 feet short of the runway If we take the captain's description of the situation—air speed 120 knots, altitude 400 feet, 3,000 feet from the approach end of the runway—a descent in excess of 2,200 feet per minute would have been required to put the aircraft into the water at the point of impact These estimates are based on a constant air speed of 120 knots However, both the captain and the copilot stated that there was no reduction of power

during the descent, therefore, if their description of the situation is accepted, the speed during such a descent would have been considerably in excess of 120 knots. It is difficult to reconcile the comparatively minor results of the accident with either of these rates of descent.

That impact forces were relatively light is substantiated by the fact that no one was injured (other than minor scratches and bruises), and by the statements of several passengers that they thought a landing had been made on the airport until they saw water coming into the aircraft. This is further borne out by the fact that many of the passengers walked rearward and made their exit through the rear emergency door, the entire passenger compartment remained virtually intact until salvage operations were begun.

Evaluation of the physical evidence and testimony leads to the conclusion that a steeply banked turn was being made at a low altitude in an effort to align the aircraft with the runway, and in so doing the right wing tip contacted the water.

FINDINGS

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

1 The aircraft, crew, and carrier were properly certificated

2 The flight was properly dispatched and was routine until arrival in the vicinity of Kingston

3 The rain squall in the Kingston area was local in nature and the visibility and ceiling at the airport were well above minimums

4 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 serious error in judgment and piloting technique on the part of the co-pilot and the failure of the captain to recognize the error and take over the controls in sufficient time to take corrective action.

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 was notified at 1100 EST, September 2, 1951, by the Pan American World Airways of the occurrence of this accident. An investigation was immediately initiated in accordance with the provisions of Section 702 (a)(2) of the Civil Aeronautics Act of 1938, as amended. A public hearing was held in connection with the investigation at Coral Gables, Florida, on October 11, 1951.

AIR CARRIER

Pan American World Airways, Inc., is a New York corporation, having its main offices at 135 East 42nd Street, New York City, and operates as an air carrier under a certificate of public convenience and necessity and an air carrier operating certificate issued pursuant to the Civil Aeronautics Act of 1938, as amended. These certificates authorize the carrier to engage in air transportation with respect to persons and property between various points in the United States and foreign countries, including Kingston, Jamaica.

FLIGHT PERSONNEL

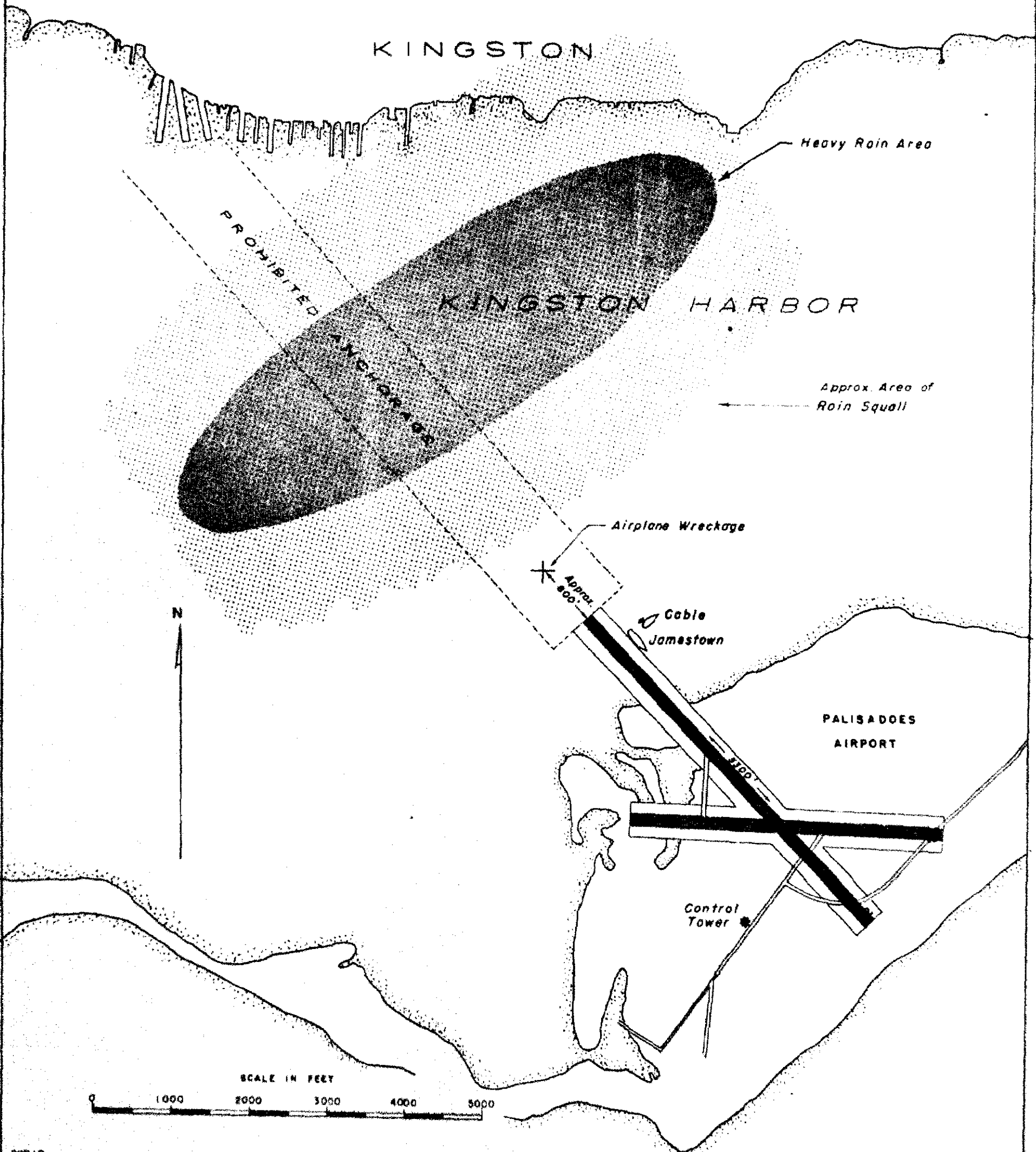
Captain John Olsen, age 35, has been employed by PAWA since July 13, 1942. His total time was 9,666 hours, of which 2,618 were on Convair 240 type aircraft. He held current ATR certificate No. 32742, with single- and multi-engine land ratings, 0-6600 hp. His last route check was accomplished on May 5, 6, 7, and 8, 1951, and his last technique check on Convair 240 on August 15, 1951.

Copilot George O. Wright, age 31, held commercial certificate No. 40062 with single- and multi-engine land and instrument ratings. His last technique check on Convair 240 was accomplished June 16, 1951. He was first employed by PAWA from October 14, 1946, through December 31, 1949. After an absence of approximately six months he was reinstated July 13, 1950. His total time as pilot was 2,591 hours, with approximately 1,199 accumulated on Convair 240's.

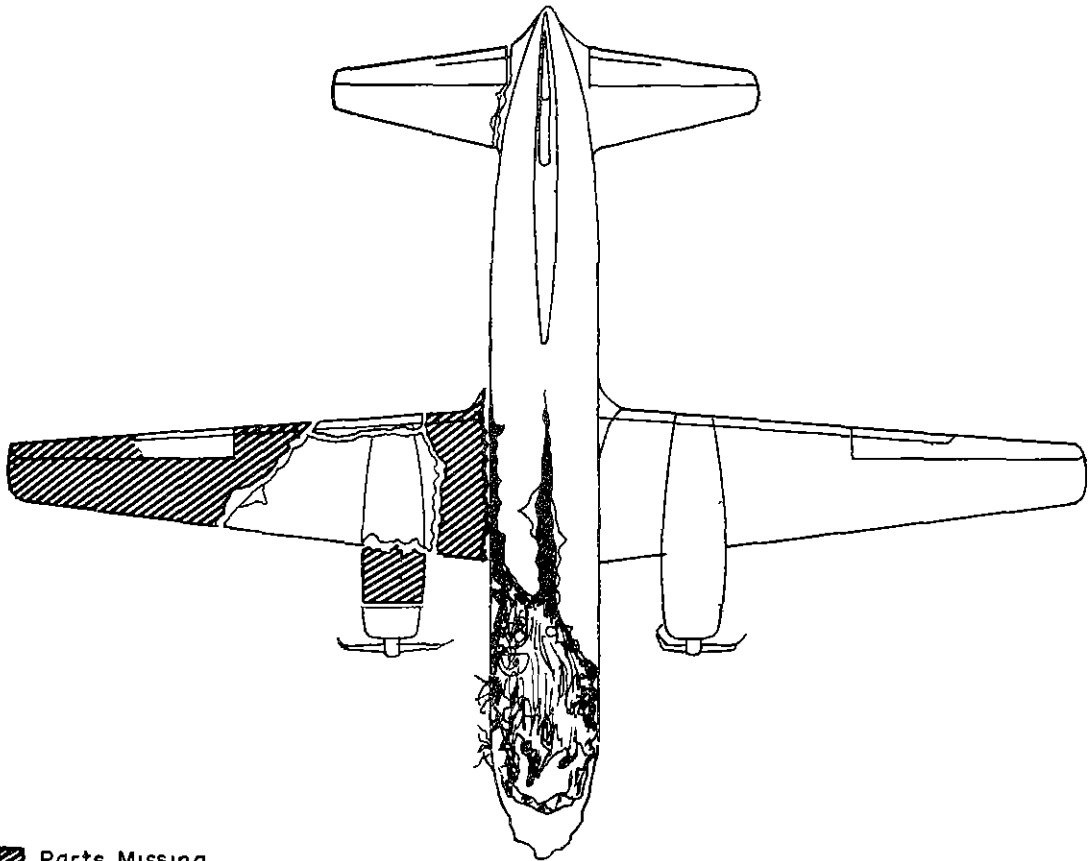
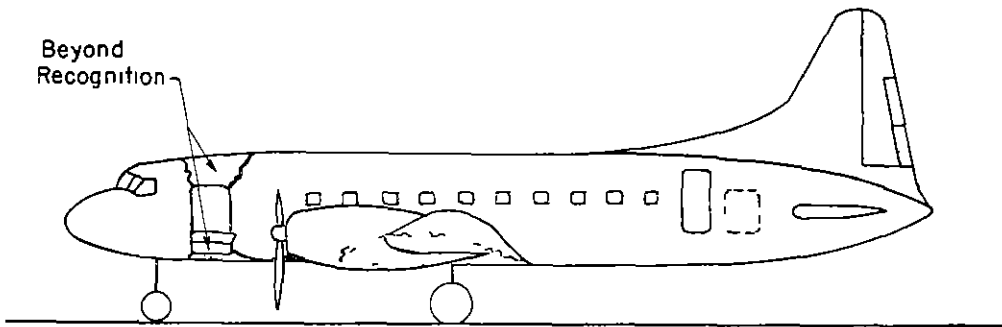
AIRCRAFT

The aircraft, a Convair Model CV-240, N 90662, was manufactured October 13, 1948, and had a total accumulated time of 4,146 hours. It was equipped with two Pratt & Whitney Model R-2800-CA-18 engines, with Hamilton Standard propellers, Model 23260.

APPENDIX "A"
PAWA ACCIDENT AT KINGSTON, JAMAICA
SEPTEMBER 2, 1951



APPENDIX "B"
DAMAGE CHART
PAWA CONVAIR N90662
KINGSTON, JAMAICA
SEPTEMBER 2, 1951



▨ Parts Missing