

CIVIL AERONAUTICS BOARD  
AIRCRAFT ACCIDENT REPORT

Adopted: July 15, 1963

Released: July 18, 1963

AMERICAN AIRLINES, INC., BOEING 720-B, N 7545A,  
LOGAN INTERNATIONAL AIRPORT, BOSTON, MASSACHUSETTS,  
SEPTEMBER 24, 1961

SYNOPSIS

On September 24, 1961, at approximately 1105 e.d.t., an American Airlines, Inc., Boeing 720-B, N 7545A, while making a precision radar approach and landing on runway 4R at Logan International Airport, Boston, Massachusetts, overshot and slid into Winthrop Bay.

There were no serious injuries to the 63 passengers or the 8 crew members.

The aircraft sustained major damage.

The Board determines that the probable cause of this accident was the captain's decision to land in variable weather conditions precluding adequate orientation relative to location along the runway.

A contributing factor was the failure to provide the flight with information concerning the deterioration of runway visual range values.

Investigation

On September 24, 1961, at approximately 1105 <sup>1/</sup>, American Airlines Flight 44, a Boeing 720-B, N 7545A, while making a precision PAR <sup>2/</sup> approach and landing on runway 4R at Logan International Airport, Boston, Massachusetts, overshot and came to rest in Winthrop Bay approximately 420 feet beyond the end of the runway

Flight 44 originated at San Francisco, California, for Boston, Massachusetts, with a scheduled en route stop at O'Hare Airport, Chicago, Illinois. The flight from San Francisco to Chicago was routine.

The crew consisted of Captain Ted E. Jonson, First Officer Joseph E. Ferdyn, Second Officer James B. Edgar, Flight Engineer Lynn J. Stenseth, Stewardesses Bernice Hildebrand, Constance Forbes, Sheila Honan, and Donna Sinner

The aircraft departed Chicago at 0918 with the same crew and 63 passengers. The gross takeoff weight of the aircraft was 194,604 pounds; this weight and the center of gravity of the aircraft were within prescribed limits. In the preflight planning it was anticipated that a 30-minute delay would be necessary at Boston awaiting improvement of the weather, which, at departure time, was below authorized landing minimums. Prior to departing Chicago an American Airlines Pilot Warning based on an existing FAA Notice to Airmen, had been supplied the crew notifying them that the ILS <sup>3/</sup> at Boston was inoperative.

The flight, operating on an Instrument Flight Plan, was cleared by Chicago Air Route Traffic Control Center (ARTCC) to the Boston Airport via Jet Airway 16 Victor to maintain 31,000 feet. However, due to reported thunderstorms en route, American 44 requested a change of altitude to 37,000 which was approved. The flight from Chicago to the Boston area was routine in every respect

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<sup>1/</sup> All times herein are Eastern Daylight based on the 24-hour clock.

<sup>2/</sup> Precision Approach Radar.

<sup>3/</sup> Instrument Landing System.

Approaching the Boston area, the first officer flying the aircraft from the right seat prepared to make the instrument approach and landing, which he did.

At 1047, Boston ARTCC cleared American 44 to intercept the 328 radial of the Boston VOR <sup>4/</sup>, and to fly that radial to Victor 141 and the Cohasset Intersection. At approximately 1050, the Boston ARTCC advised Flight 44 to turn right and proceed directly to the Boston VOR, to descend to and maintain 4,000 feet. At 1053 the flight was at the 4,000-foot level. One minute later the center advised American 44 as follows: "Boston Approach Control has you in radar contact, frequency 126.5." American acknowledged, "Good day."

Shortly thereafter American 44 advised Approach Control that it was approaching the Boston VOR. Approach Control replied: "American Forty-four . . . radar contact, proceed as cleared, expect a radar vector southeast of Boston omni for precision approach, runway four right, wind east-southeast five, altimeter three zero one two, the Boston weather, partial obscuration, measured three-hundred overcast, visibility one mile in fog, runway visual range more than six thousand." Flight 44 replied "OK weather received, proceed as cleared . . . ." The approach controller then transmitted the following message to the flight: "American 44 will you be accepting a precision approach four right?" Flight 44 accepted a PAR approach by replying "affirmative." The approach controller then advised the flight "This will be precision approach runway four right, runway length 10,021 feet, field elevation one niner, point of touchdown 3,417 feet approach end of runway to allow for shipping through the channel." American 44 acknowledged "Forty-four." During the next two minutes, Flight 44 descended from 4,000 to 1,800 feet and was vectored to a

position south of the outer marker. At approximately 1057 the Boston Approach Controller transmitted this message to the flight, "Will a turn just south of the outer marker be sufficient for you?" American 44 replied . . . "that will be OK - outside the outer marker "

At approximately 1059 the approach controller gave the flight the latest Boston weather, which was partial obscuration measured 300 overcast; visibility one mile in fog. The flight acknowledged receipt of this transmission. Flight 44 was then given several vectors to establish the aircraft on an inbound heading for the outer marker, and was advised by the approach controller to change radio frequency to 118.1 megacycles - the frequency of the PAR controller. American 44 acknowledged the transmission and advised that it was "changing over."

At 1102 the Boston PAR controller transmitted to the flight "American 44 this is your final controller how do you read?" The flight replied "American 44 read you 118.1." The PAR controller repeated his previous request. The flight replied "read you OK." The PAR controller watching the flight on a radar screen continued "four zero, four zero is your heading, be intercepting the glidepath in ten seconds - zero four zero is your heading - you are six miles from touchdown just about past the Boston ILS outer marker - you are intercepting the glidepath now ---begin your initial rate of descent - zero four zero is your heading - by the Boston ILS outer marker." The American flight acknowledged these transmissions

The PAR controller, starting at approximately 1103, transmitted the following

"American 44 check your gear down and locked, turn right to heading zero four three, zero four three is your heading - four and three quarter

miles from touchdown - zero four three is your heading, going a hundred feet above the glidepath, adjust your rate of descent, zero four three is your heading ---four miles from touchdown - American 44 drifting slightly to the right of course turn left, heading of zero four zero, zero four zero - you are still riding two hundred feet above the glidepath, adjust your rate of descent - zero four zero is your heading three and a quarter miles from touchdown. American 44 cleared to land, your heading is zero four zero - two and a half miles from touchdown now - zero four zero is your heading back on the centerline nicely still riding a hundred feet above the glidepath - adjust your rate of descent - turn right . . . heading zero four three, zero four three is your new heading - you are two miles from touchdown now, zero four three is your heading - you are still 50 feet above the glidepath, adjust your rate of descent, you are drifting to the right again, turn left to heading zero four zero, zero four zero is your heading - approaching the stacks of Castle Island - zero four zero is your heading, turn further left heading of zero three eight, zero three eight, you are still 50 feet above the glidepath, adjust your rate of descent - zero three eight is your heading approaching the middle marker, you are by the stacks of Castle Island - passing the middle marker - turn right heading of zero four zero, zero four zero you are still 25 feet above the glidepath, zero four zero is your heading, you are past the physical end of the runway now, zero four zero is your heading, still 25 feet above the glidepath . . .zero three eight is your heading now, zero three eight, slightly to the right of the centerline, over touchdown if you don't have the runway in sight execute a missed approach.

American 44 all the way to the end, left turn at the end, contact tower " The remaining part of this message was unintelligible.

At approximately 1105 American 44 transmitted the following message:

"Looks like we're going to slide off here Buddy." Shortly thereafter the aircraft ran off the end of the runway, turning to the right, and came to rest in Winthrop Bay on a heading of approximately 150 degrees magnetic at a point approximately 420 feet beyond the physical end of the runway.

The aircraft came to a stop in approximately 16 feet of water, its landing gear resting on the bottom of the bay. One of the stewardesses, assisted by a passenger, opened the aft entry door but closed it quickly when water entered the aircraft. Approximately 20 of the aircraft's occupants left through the forward main entry door and were brought ashore in two boats. The others went through the window exit at seat 7A onto the wing, and were then transported by boat to the yacht club across the bay. It was estimated that the aircraft was completely vacated within 10 minutes.

The aircraft sustained major damage. Nos 1 and 2 engines broke away at the time the aircraft entered the water. Nos. 3 and 4 engines remained attached to the right wing. The nose cone was separated from the fittings of the supporting bulkhead; however, it remained an integral unit, with the greater amount of damage on the lower edge. Major impact damage was evident at and below floor level from fuselage station 188 aft to station 299. The skin was buckled from the base of the windshield and cockpit window downward. This collapse resulted in a deformation and breakup of the crew compartment flooring and was centered at fuselage station 259.5. The flooring was buckled upward raising the forward observer's seat approximately 12 inches from its normal

position. The captain and first officer seats were canted outward and forward. The control pedestal was displaced into the radar panel, binding the rudder pedals and restricting both the elevator and aileron controls. The wing flaps and their selector handles were found in the fully extended position and the speed brakes and their selector handles were found in the retracted position.

The reverser clam shell doors and controls of all four engines were found in the full reverse position although the controls in the cockpit were in varied positions. The anti-skid switch was found in the ON position and guarded.

The flight recorder was undamaged but subsequent study of its record foil by the Board revealed evidence of intermittent binding along the lower edge. The recorder had become inoperative 53 seconds after the Chicago departure and had resumed operating approximately 65 seconds prior to touchdown at Boston. All four parameters were erratic and the information contained thereon could not be used in the investigation.

Both the captain and first officer testified that the approach was commenced at a speed of 144 knots which was 10 knots above the reference speed for the estimated gross landing weight of the aircraft, and that the gear was lowered and full flaps extended.

The captain and first officer testified further that they were familiar with the instrument approach procedure for Boston Airport since both had previously made ILS and PAR approaches at that airport; that their company's Operating Manual specified that instrument approaches should be made slightly above but never below the glidepath until reaching the "slot" (interpreted to be over the middle marker) at which point the aircraft should be on course and on

the glidepath. (One hundred feet above the glidepath at the middle marker was not excessive according to the company's Director of Flying Training.)

They further stated that they were aware of the fact that the glideslope was fairly steep <sup>5/</sup> and were familiar with the lighting systems at that airport. They said they first saw the runway when passing the middle marker at an altitude of 300 to 350 feet; that the approach was normal with only slight power adjustments; that altitude as well as sink rate were principally controlled by aircraft attitude. They said further that they did not see any of the lights in operation at that time, namely the approach lights, the strobe lights, the threshold lights, or the runway lights; that they did not see the approach end of runway 4R, the crossing runway, the intersection taxiways, the painted markings on the runway, identifiable landmarks or objects nearby, or the far end of the runway.

The captain stated that there was no flare or float, that they determined their position from the information supplied them by the PAR controller and that the first time they were visually aware of their position on the runway was when the end of the runway suddenly appeared before them several seconds before they entered the water.

The crew testified further that power was reduced just prior to touchdown; that touchdown was smooth and normal; that touchdown was believed to be at 134 knots approximately 1,000 feet beyond the normal PAR touchdown point

The first officer, who flew the aircraft throughout the entire approach, stated that as he applied reverse thrust he saw the captain activate the speed brakes; however, the captain did not recall extending them. A passenger on Flight 44 stated that the speed brakes were not extended during the landing.

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<sup>5/</sup> The glideslope projection angle is normally adjusted by FAA to 2.5 degrees to 3 degrees above horizontal. The published angle for Boston is 3.03 degrees.



The crew also stated that there was a slight delay in response to the application of the No. 1 engine reverse thrust; that there appeared to be inadequate deceleration of the aircraft, and that no brake anti-skid reaction was felt on the brake pedals although brake application was heavy

At 1041 the Weather Bureau Observer at the Boston Airport reported a partial obscuration, due to the fact that 4/10ths of the sky was obscured by fog, and there was a measured 300-foot ceiling. At 1057 with less than 1/10th of the sky obscured, the ceiling was reported as measured 300 feet with no partial obscuration. At 1113 the weather report contained a partial obscuration and a measured 400-foot ceiling. Thus, between 1041 and 1113 the ceiling had improved by 100 feet but the obscuration, caused by the fog moving in and out, had decreased at 1057, but increased thereafter as indicated by the 1113 report. The observer with respect to the 1113 observation stated that: "I had noticed . . . the runway and it was beginning to fade rapidly in fog which was moving in all around us, as the outer markers were being obscured by the fog." Thus, while the amount of obscuration had increased the total amount was apparently less than 10/10ths and did not require a special weather report.

Eyewitnesses variously stated that American 44 emerged from the overcast at altitudes ranging from 20 to 300 feet, that this occurred at a point in the vicinity of the central taxiway, and the intersection of runways 4R and 15-33; that the aircraft flared, floated three to four feet above the ground and disappeared, still airborne, in a "finger of fog," extending across the runway in the vicinity of taxiway A. Two Air National Guard jet pilots testified that while standing near the approach end of runway 4R they heard the flight pass over but could not see it. They stated that the ceiling at their location was very

ragged and that they observed the aircraft emerge from the overcast at an altitude of approximately 150 feet in the vicinity of the central taxiway where it flared, floated, and disappeared, still airborne in the fog near the far end of the runway. They stated that they had observed other PAR approaches for a two-hour period prior to the approach of American 44 but in each instance were able to see the aircraft as it passed overhead; that the approach made by the American flight was "high and hot," and that both the ceiling and visibility had been fluctuating because of fog moving in from the bay.

The Boston Tower Local Controller stated that he observed American 44 emerge from the overcast at an altitude of 50 feet above the runway approximately 200 feet southwest of the central taxiway. The visibility at that time was one mile. The aircraft flared at the intersection of runway 15-33, floated and, still airborne, disappeared momentarily from view in a patch of fog located in the vicinity of taxiway A. He stated that he did not see the actual touchdown but did observe the aircraft emerge from the fog in the landing rollout. From that point he followed its course to the end of the runway where it again entered a fog area.

A Boston-based American Airlines pilot riding as a passenger on Flight 44 stated that the aircraft broke out of the overcast at an altitude of approximately 300 feet over the central taxiway. He said he did not see the approach lights, the strobe lights, threshold lights, or the runway lights, and as the aircraft passed the intersection of runway 15-33 they were still airborne and "kind of high." He stated further that they were still airborne approaching taxiway A, and as the aircraft made contact with the runway he looked down and at that time the aircraft was passing taxiway A. He said touchdown was smooth

and deceleration, as related to seat belt pressure, became more pronounced as the aircraft neared the end of the runway, further that very shortly after touchdown he felt the brakes cycling.

The consensus of passengers aboard Flight 44 was that the aircraft touched down, bounced, and touched down again. Shortly after the second touchdown there was a high degree of reverse thrust, heavy braking, and a thumping sound described as resembling that of a flat tire. None of the tires however, were blown out

The point of actual touchdown as determined by tire marks on the runway generally coincided with the testimony of eyewitnesses. Runway 4R is 10,021 feet long but the PAR touchdown point at Boston is 3,417 feet from the approach end of the runway leaving 6,604 feet of useable runway. The investigation revealed from the tire marks that American 44 first made contact with its right gear 3,165 feet beyond the PAR touchdown point, 80 feet in from the left side row of runway lights. The aircraft then touched on its left gear also; ran on both gears for about 100 feet, then skipped for a distance of approximately 614 feet, leaving a light left gear mark with little or no apparent braking action and no right gear mark. Thereafter, the aircraft rolled straight on both gears for about 200 feet, then jogged to the right. From this point heavy tire marks indicated that the aircraft continued in a straight line down the runway for some distance, then gradually began a curve to the right which continued to the water's edge.

By agreement with the U. S. Weather Bureau, when the visibility is less than four miles, FAA tower personnel certificated by the Weather Bureau measure and record the official visibility. Since the visibility at Boston was less than

four miles when American 44 was making its PAR approach, visibility observations were the responsibility of the Boston Tower.

Visibility is generally measured by reference to prominent landmarks, the distance to which is predetermined and charted for the observer's use. In addition, Boston Tower is equipped with indicators which provide an instantaneous readout of RVR. <sup>6/</sup> A "slave" RVR indicator is located in the Boston Tower cab and another in the IFR room near the approach controller's position, which is some distance from the PAR controller's position. The master instrument is located in the U. S. Weather Bureau office at the airport. This master instrument records RVR on a graph. Between 1041 and 1112 a random sampling of the transmissometer graphic trace indicates the following RVR measurements:

1041 - 6,000 feet (plus)  
1055 - 6,000 feet (plus)  
1057 - 6,000 feet (plus)  
1102 - 2,200 feet (fluctuating)  
1105 - 4,200 feet  
1110 - 3,400 feet (fluctuating)  
1113 - 3,300 feet (fluctuating)  
1112 - 3,800 feet (fluctuating)

When American 44 was making its final approach the visibility was fluctuating rapidly. The runway visual range varied from more than 6,000 feet to as

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<sup>6/</sup> Runway visual range is an instrumentally derived value, based on standard calibrations that represent the horizontal distance a pilot will see down the runway from the approach end. RVR is horizontal and not slant visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is reported in hundreds of feet.

low as 2,200 feet. The fluctuations in visibility were caused by lines of fog which originated over the water area, then moved over the surface of the airport.

The RVR reading at 1055 was transmitted to Flight 44; however, information concerning subsequent marked deterioration in RVR to a value well below the lowest minimums applicable to this approach was not supplied the flight by the approach controller who had control of the flight from 1057 to 1102, nor subsequently by the PAR controller. This is contrary to pertinent instructions.

An instrument approach to an airport is predicated on the existence of minimum ceiling and visibility conditions. American Airlines minimums for jet aircraft making a PAR approach to land straight-in on runway 4R were a ceiling of 300 feet and 3/4 mile visibility. Four thousand feet RVR is authorized as an alternative for 3/4 mile.

### Analysis

The investigation revealed that Flight 44 was dispatched according to company procedures; the flight crew and the aircraft were properly certificated; the aircraft was loaded and landed within allowable weight limits, and there was no malfunctioning or failure of the engines, the aircraft, its accessories or components.

Before Flight 44 departed Chicago, the crew was aware that the ILS at Boston was inoperative. As the flight approached Boston, the Boston Approach Controller asked the crew if they would accept a PAR approach. The crew accepted.

In reviewing the transmissions made by the PAR controller at Boston, it was found that the aircraft was 200 feet above the glidepath at the outer marker and consistently above the glidepath during the final approach. Also, that when the

aircraft was over the PAR touchdown point it was 25 feet high. Tire marks indicated that the actual point of touchdown was 3,165 feet beyond the PAR touchdown point. Witnesses indicated that the aircraft flared and floated from a point in the vicinity of the central taxiway, where it was first observed to the point of initial touchdown. In giving consideration to the 3,165 feet distance that the aircraft floated, reference was made to Boeing Aircraft performance data for a 720-B aircraft in the same approximate configuration as that of Flight 44.

From this it was found that a distance of 1,830 feet would be covered, assuming a flare at 25 feet above ground made at  $V_{ref}$  plus 10 (144 knots) and floating while allowing the aircraft to decelerate to 134 knots at touchdown. It was also found that a distance of approximately 1,200 feet would be covered in dissipating 10 knots of excess speed while airborne. It can be assumed therefore that, if the flare was initiated at 25 feet and if touchdown was at referenced speed (134 knots), the airspeed at time of flare must have been approximately 154 knots - to account for the 3,165 feet of distance. <sup>7/</sup>

Tire marks indicate that after contacting the runway and rolling a distance of 124 feet, the aircraft again became almost airborne for an additional 614 feet leaving just a trace of the left main gear tire mark on the runway. Heavy tire marks then appear again at a point 2,700 feet from the end of the runway toward which the aircraft continued and rolled off into the bay. The speed at touchdown must have been fast as indicated by the nature of the tire tracks, the total distance travelled, and the fact that the captain stated, with reference to speed during landing roll, "I was aware that we were probably a

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<sup>7/</sup> With the surface wind conditions existing at the time, there was no significant difference between the airspeed of the aircraft and its ground speed.

little faster than we should have been." Considering all these facts, it is concluded that the speed at touchdown was at least 134 knots.

Prior to the initiation of the final approach Flight 44 was given the Boston weather at 1055 which included the following Partial obscuration, ceiling measured 300 feet overcast, visibility one mile in fog, runway visual range more than 6,000 feet. During the time Flight 44 was making its approach, visibility deteriorated rapidly in the approach area from more than 6,000 feet to as low as 2,200 feet, as shown by the RVR transmissometer record. The National Guard pilots who were located near the approach end of runway 4R stated that they could hear, but not see Flight 44, as it passed overhead and that just prior to this both the ceiling and visibility had been fluctuating considerably because of fog moving in from the bay.

The local controller testified that he first observed the aircraft as it broke out of the overcast at a point about 200 feet southwest of the central taxiway (approximate vicinity of PAR touchdown point) and that it flared and floated before disappearing from sight into the fog near taxiway A. When he next saw the aircraft it had emerged from the fog and was rolling on the runway.

The weather observer on duty during this period stated that the base of the overcast ceiling was quite uniform and that at 1057, and again at 1113, the ceiling was measured at 400 feet with a partial obscuration beneath.

The captain and first officer testified that they first saw the runway when over the middle marker at an altitude of 300 feet. However, it is significant that neither the captain nor the first officer could recall seeing the approach end of the runway, the approach lights, the threshold lights, taxiways, crossing runways, or the far end of the runway at this time or at any time during the

final approach. It was not until the aircraft had emerged from the fog, touched down, and was rolling down the runway that the crew saw the far end of the runway.

The Board believes that the visibility was below the required RVR minimum of 4,000 feet during a portion of, if not during, the entire final approach. The Board also believes that fog conditions obscured both the approach and far end of the runway, and that this prevented the captain and first officer from determining the aircraft's relative position to either end of the runway, the PAR touchdown point, or the PAR threshold.

Paragraph 482.2 of the FAA Facility Operations Manual on Page 7230.1 states as follows. "When RVR on the instrument runway is 4,000 feet or less RVR shall be reported by the local controller or PAR controller on the initial contact and subsequently as required to each pilot intending to land straight-in on the instrument runway." The manual, however, contains no provision for relaying RVR information to the PAR controller at those locations where the RVR indicator is not immediately available for his use. Such a condition existed at the Boston Tower where the physical location of the RVR indicator in the IFR room precluded reference by the PAR controller. However, the instrument was immediately adjacent to the approach control position. The rapid deterioration of RVR which commenced between 1057 and 1100 should have been called to the attention of American 44 by the approach controller since any significant change during this period could have influenced the pilot's decision to attempt a landing.



Again according to the crew's testimony, they did not see the approach threshold of the runway, nor did they observe any other markings which could be used for visual reference. Normally, the ILS/PAR touchdown point is located approximately 1,000 feet from the end of the runway and the threshold coincides with the actual physical end of the runway.

In making an approach to runway 4R the aircraft, if on the glidepath, is approximately 192 feet high when crossing over the physical end of the runway. At an installation, with a 2.5 degree glidepath, an aircraft is approximately 50 feet high when crossing the physical end of the runway and the pilot is about ready to flare for touchdown. At such an installation, the physical end of the runway serves as the primary reference point for the pilot in anticipating the point of touchdown during daylight conditions. At night the threshold lights serve to mark the physical end of the runway. At Boston, however, there is no such positive and distinguishing reference. The ILS/PAR touchdown point on runway 4R is located 3,417 feet in from the physical end of the runway. The PAR threshold, marked by threshold lights extending outward from both sides of the runway, is 2,500 feet in from the actual physical end of runway threshold. The threshold lights, extending outward from each edge of the runway, do not provide the same definite visual cue that is given by sighting the end of the runway. The crossing runway 9-27 and the central taxiway, however, do provide a means for establishing reference to the location of the ILS/PAR touchdown point. Thus, while a pilot may have difficulty in picking up the physical end of runway 4R in making an approach under minimum ceiling and visibility conditions, during daylight he should be able to orient his position relative to the intersections made by runway 4-27, and the central taxiway as they cross runway 4R.

In the case of Flight 44, the approach was continued without such reference being established. Moreover, the approach was being made at a speed somewhat faster than normal. Furthermore, considering the location of the PAR touchdown point and the speed of the aircraft, the approach can be considered as high from the middle marker to over the PAR touchdown point.

The aircraft first touched down 3,165 feet beyond the PAR touchdown point with only 3,438 feet of runway remaining. Boeing test data indicate that using spoilers, brakes, and reverse thrust a 720-B aircraft, with a gross weight of 176,000 pounds, in a calm wind on a sea level standard day on a dry runway at a speed of 134 knots can be stopped in 2,393 feet. This figure was established under optimum conditions, without the elements of surprise or emergency. Accordingly, the Board concludes that touchdown was at a speed in excess of 134 knots or that maximum stopping capability was not utilized.

Probable Cause

The Board determines that the probable cause of this accident was the captain's decision to land in variable weather conditions precluding adequate orientation relative to location along the runway.

A contributing factor was the failure to provide the flight with information concerning the deterioration of runway visual range values.

BY THE CIVIL AERONAUTICS BOARD:

/s/ ALAN S. BOYD  
Chairman

/s/ ROBERT T. MURPHY  
Vice Chairman

/s/ CHAN GURNEY  
Member

/s/ G. JOSEPH MINETTI  
Member

/s/ WHITNEY GILLILLAND  
Member

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

### Investigation and Depositions

The Civil Aeronautics Board was notified of the accident at 1120 e.d.t., on September 24, 1961. Civil Aeronautics Board investigators proceeded immediately to the scene of the accident and began their investigation.

Depositions were taken in Boston, Massachusetts, on October 10-11, 1961.

### The Carrier

American Airlines, Inc., is a Delaware corporation with its principal offices in New York, New York. The carrier holds a current certificate of public convenience and necessity issued by the Civil Aeronautics Board and a current air carrier operating certificate issued by the Federal Aviation Agency. These certificates authorize the carrier to engage in air transportation of persons, cargo, and mail within the United States including the route involved.

### The Aircraft

The aircraft was a Boeing 720-B Astrojet manufactured under serial number 18031 on April 17, 1961. Total flying time on the aircraft was 1223.00 hours; time since last line maintenance was 1217.56 hours; and time since last major inspection was 943.00 hours. The powerplants consisted of four Pratt and Whitney JT3D Turbofan engines.

Engines Nos. 1, 2, 3, and 4 had time since overhaul respectively as follows. No. 1 TSO: 223 hours; No. 2 TSO. 340 hours; No. 3 TSO. 392 hours; No. 4 TSO: 689 hours.

## Flight Personnel

Captain Ted Jonson, age 52, possessed ATR No. 17815 with rating in DC-6, DC-7, Boeing 707, and Convair 240. He had logged approximately 22,000 hours of pilot time and had approximately 1,800 hours in the Boeing 707-720 aircraft. The date of his first-class medical examination was on June 19, 1961. He successfully completed a proficiency check on May 29, 1961, and a line check on May 3, 1961.

First Officer Joseph E. Ferdyn, age 41, possessed ATR No. 240429 with a rating in the Convair 240 and was promoted to first officer on the Boeing 707 on March 15, 1959. He also possessed a flight engineer certificate No. 1180611. He had a total of approximately 12,000 pilot hours, 2,000 hours of which were in the Boeing 707. His last first-class medical examination was accomplished on August 24, 1961, and he passed a line check on May 22 and 23, 1961, and a proficiency check on May 16, 1961.

Second Officer James B. Edgar, age 32, possessed a commercial pilot's certificate No. 1335812. He was promoted to second officer on Boeing equipment on April 15, 1961. He had logged approximately 5,000 pilot hours of which 750 hours were flown as second officer on the 707-720 aircraft. His last first-class medical examination was taken on March 21, 1961.

Flight Engineer Lynn J. Stenseth, age 41, possessed flight engineer's certificate No. 1139353, and was rated in the Boeing on May 3, 1959. He had logged approximately 9,000 hours total time of which 2,000 hours were in the Boeing equipment. The date of his last second-class medical examination was November 16, 1959, and the date of the last medical examination given by the

company was November 15, 1960. He was given a proficiency check on September 7, 1961, and a line check on May 17, 1961

Stewardess Constance Forbes, age 22, graduated from Stewardess Training School on March 3, 1959, and was qualified in the Boeing 707 equipment in April 1959. She had approximately 2,000 hours of flying time with the company of which 1,700 hours were in the Boeing Jet equipment.

Stewardess Bernice Hildebrand, age 24, graduated from Stewardess Training School on July 2, 1957, and was last qualified in the Boeing 707 equipment in November 1960. She had approximately 4,200 hours of flying time with the company of which 1,800 hours were in the Boeing Jet equipment.

Stewardess Donna Sinner, age 30, was graduated from Stewardess Training School on April 25, 1958, and was last qualified in the Boeing 707 equipment in November 1960. She had approximately 2,700 hours of flying time with the company of which 900 hours were in Boeing Jet equipment.

Stewardess Sheila Honan, age 23, graduated from Stewardess Training School on September 9, 1959, and was last qualified in the Boeing 707 equipment in November 1960. She had approximately 1,600 hours of flying time with the company of which 800 hours were in Boeing Jet equipment.