# National Transportation Safety Board
# Aviation Accident Final Report

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| **Location:** | NORFOLK, NE | **Accident Number:** | CHI93FA302A |
| **Date & Time:** | 07/30/1993, 1700 CDT | **Registration:** | N707BP |
| **Aircraft:** | Rockwell 690-A | **Aircraft Damage:** | Destroyed |
| **Defining Event:** | | **Injuries:** | 4 Fatal |
| **Flight Conducted Under:** | Part 91: General Aviation - Business | | |

## Analysis

THE ROCKWELL 690-A, N707BP, WAS FLYING A STRAIGHT-IN ENTRY TO A DOWNWIND LEG FOR RWY 19 AT THE NON-CONTROLLED ARPT. THE ONLY RADIO CALL HEARD FROM THE ROCKWELL WAS A REQUEST FOR AN AIRPORT ADVISORY WHEN IT WAS ABOUT 20 MI SE. THE PIPER PA-28R, N33056, HAD DEPARTED FROM RWY 19. NO RADIO CALLS WERE HEARD FROM THE PIPER. WITNESSES OBSERVED THE ROCKWELL HEADING NORTH AND THE PIPER HEADING EAST MOMENTS BEFORE THE COLLISION. THE WITNESSES STATED THE PIPER PITCHED UP AND BANKED STEEPLY MOMENTS BEFORE THE COLLISION. THE COLLISION OCCURRED APROX 2 MI ESE OF THE ARPT. ON-SCENE INVESTIGATION SHOWED THAT THE PIPER'S LEFT MAIN LANDING GEAR TIRE HAD MADE AN IMPRINT ON THE BOTTOM OF THE ROCKWELL'S OUTBOARD LEFT WING. PAINT COLOR FROM THE ROCKWELL HAD TRANSFERRED TO THE PIPER'S LEFT WING SKIN.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE FAILURE OF THE PILOTS OF THE ROCKWELL 690-A, N707BP, AND THE PIPER PA-28R, N33056, TO SEE AND AVOID EACH OTHER. A FACTOR WHICH CONTRIBUTED TO THE ACCIDENT WAS THE FAILURE OF BOTH PILOT'S TO FOLLOW RECOMMENDED COMMUNICATION PROCEDURES CONTAINED IN THE AIRMAN'S INFORMATION MANUAL FOR OPERATING AT AN AIRPORT WITHOUT AN OPERATING CONTROL TOWER.

## Findings

Occurrence #1: MIDAIR COLLISION
Phase of Operation: APPROACH - VFR PATTERN - DOWNWIND

Findings
1. (F) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
2. (F) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT OF OTHER AIRCRAFT
3. (C) VISUAL LOOKOUT - INADEQUATE - PILOT IN COMMAND
4. (C) VISUAL LOOKOUT - INADEQUATE - PILOT OF OTHER AIRCRAFT

## Factual Information

HISTORY OF FLIGHT

On July 30, 1993, at 1700 central daylight time, a Rockwell International 690-A, N707BP, registered to Motel Developers, Incorporated, of Norfolk, Nebraska, and piloted by an airline transport certificated pilot, was involved in a midair collision with a Piper PA-28R-200, N33056. N33056 was registered to Storm Flying Service, Incorporated, of Webster City, Iowa, and piloted by a private pilot. Both airplanes were destroyed.

The midair collision occurred approximately 1 1/2 to 2 miles east-southeast of the Karl Stefan Memorial Airport, Norfolk, Nebraska. Visual meteorological conditions prevailed at the time of the accident. N707BP was being operated as a business flight under 14 CFR Part 91. The IFR flight plan under which it was operating was canceled approximately five minutes before the collision. The pilot and three passengers on board N707BP were fatally injured. The flight originated from Mountain Home, Arkansas, exact time unknown.

N33056 was being operated as a personal flight under 14 CFR Part 91 when the accident occurred. A flight plan had not been filed for the airplane which had departed on runway 19 at the Karl Stefan Memorial Airport just prior to the collision. The pilot was fatally injured.

The Unicom radio operator at the Karl Stefan Memorial Airport said he heard a person identifying himself as N707BP's pilot requesting an airport advisory. He said N707BP's pilot stated he was 20 miles southeast of the airport. A second pilot flying near the airport stated he heard the radio transmission from N707BP requesting information about the airport's runway. Both individuals stated they did not hear a radio transmission from N33056.

Witnesses to the midair collision stated N707BP was in level flight and heading in a northerly direction just prior to the collision. The witnesses stated they observed N33056 flying in an easterly direction. According to these witnesses, the airplane entered a steep right bank and pitched up immediately before the collision.

PERSONNEL INFORMATION

According to Federal Aviation Administration (FAA) medical records, the pilot of N707BP obtained a second class medical certificate on June 16, 1993. During the examination the pilot was found to have 20/200 uncorrected vision that was corrected to 20/30. A July 13, 1993, letter from the FAA's Aeromedical Certification Division directed the pilot to have his vision rechecked because it did not meet the 20/20 visual acuity requirements of 14 CFR Part 67.13(b)(1). According to the June 16, 1993, medical application form, the pilot had normal field and color vision. According to the pilot's medical examiner the pilot of N707BP did not wear contact lenses.

FAA medical forms, dating between August 1979, and June 1993, showed the pilot's uncorrected distance vision varied between 20/100 and 20/400. The variance may have been caused by the pilot squinting when his eyes were examined, according to an FAA research optometrist. The pilot's corrected vision varied between 20/15 and 20/30. The doctor's response to this condition was that the pilot may have had a poor prescription.

The doctor said peripheral vision proportionately decreases the further away an object gets from a person's central vision. He said the 20/30 vision should give a pilot ability to see some movement when beyond 15 degrees of his central vision. Defining an object, and recognizing

relative motion, would be difficult for the pilot the further away it was from his central vision. Beyond 15 degrees, and one to two miles, the pilot can see a flashing light or reflection from another airplane according to the doctor.

According to his logbook, the pilot of N33056 had last flown a PA-28R-200 on November 30, 1991. His logbook showed a flight in a Piper PA-28-151 on July 14, 1992. According to his logbook, the pilot's most recent flight was on May 26, 1993, in a Cessna 152. There were no flight times entered between the July, 1992, and May, 1993, dates. FAA medical records related to N33056's pilot showed he had a visual acuity of 20/20 in each eye as of October 22, 1992.

AERODROME INFORMATION

The Karl Stefan Memorial Airport is a non-controlled airport. The traffic pattern altitude is 1,000 feet above ground level and has lefthand traffic patterns for all runways.

The Federal Aviation Administration's Airman's Information Manual (AIM), dated May 27, 1993, provides an airport traffic pattern diagram that is advisory in nature. Concerning airport arrivals and departures, the AIM states: "Enter pattern in level flight, abeam the midpoint of the runway, at pattern altitude." The AIM states departing airplanes "... continue straight out, or exit with a 45 degree left turn beyond the departure end of the runway, after reaching pattern altitude."

The traffic pattern a pilot should fly when approaching the airport to land is established by the Federal Air Regulations (FAR), FAR 91.126 (a), (b) (1), and 91.127 (b)(1). Both regulations address arriving aircraft only. There are no regulatory requirements regarding departures from a non-control tower airport.

WRECKAGE AND IMPACT INFORMATION

N707BP's wreckage was located in three specific sections: left outboard wing section, left engine and inboard wing section, and the fuselage/right wing and engine/empennage sections. N707BP's fuselage, empennage, and right wing were destroyed during the ground collision and fire. The right engine and propeller were found in the largest ground scar next to the main wreckage. The left engine and small section of left wing were observed approximately 360 feet south of the main wreckage area.

N33056's wreckage was confined to an area centered approximately 1,800 feet south of N707BP's final resting place. N33056's wreckage was arranged in an arc around its rear fuselage from an easterly heading, through north, and to a west-southwest heading.

Three cut marks were found on N33056's left forward fuselage. The first cut was found approximately nine inches forward of the firewall. The second and third cuts were located approximately 27 and 53 inches aft of the first cut. The pilot's seat had a cut through the left rear section of its cushion. The cut aligned with the third cut observed in the fuselage when the seat was positioned on its track.

N33056's right and left wings were both found in three separate sections. Two of the left wing's three sections were comprised of main wing spar pieces and portions of wing ribs attached. Wing skin associated with these wing spar segments had separated from the structure, and were ripped and crushed. The third section was intact from the inboard end of the aileron outward to the wingtip. The wing skin on this section was crushed aft at the leading edge and exhibited many torsional tears and compression folds.

Paint transfer marks from N707BP were observed on portions of N33056's left bottom wing skin. The bottom left wing root fairing strip had paint transfer marks that were the color of N707BP.

The bottom of N707BP's left wing outboard section revealed a tire sidewall transfer mark. Tire sidewall lettering and manufacturer's symbol from N33056's left main landing gear tire were found on this section.

MEDICAL AND PATHOLOGICAL INFORMATION

The FAA's Civil Aeromedical Institute toxicology report on the pilot of N707BP stated that toxicological tests were not possible due to a lack of suitable specimens. The autopsy on this pilot was performed at the St. Luke's Medical Center, Sioux City, Iowa, on July 31, 1993. The report stated the probable cause of death was from, "Severe traumatic injuries, from midair crash of airplanes."

The FAA's Civil Aeromedical Institute toxicology report on the pilot of N33056 stated detection of carbon monoxide and cyanide was not possible due to a lack of suitable specimens. No ethanol was detected in the vitreous fluids. 7.400 (ug/ml, ug/g) of salicylate was detected in the liver fluid. The autopsy was performed at the St. Luke's Medical Center, Sioux City, Iowa, on July 31, 1993. The autopsy reported stated the probable cause of death was from, "Severe traumatic injuries, from midair crash of airplanes."

ADDITIONAL INFORMATION

Geographic coordinates for the Karl Stefan Memorial Airport are 41 degrees, 59 minutes North and 97 degrees, 26 minutes West. On July 30, 1993, at 1700 central daylight time the sun's position in the sky was 40 degrees, 38 minutes above the horizon and its azimuth was 257.3 degrees at the airport's location. The sun's position was obtained from the United States Coast Guard Academy, Professional Studies Branch, New London, Connecticut.

The wreckages of N707BP and N33056 were released to Mr. Richard Knopf, Karl Stefan Airport Manager, Norfolk, Nebraska, on August 3, 1993.

## Pilot Information

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| **Certificate:** | Airline Transport | **Age:** | 47, Male |
| **Airplane Rating(s):** | Multi-engine Land; Single-engine Land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | Airplane Single-engine | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 2 Unknown | **Last FAA Medical Exam:** | 06/16/1993 |
| **Occupational Pilot:** | | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 17770 hours (Total, all aircraft), 414 hours (Total, this make and model), 17630 hours (Pilot In Command, all aircraft), 185 hours (Last 90 days, all aircraft), 84 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft) | | |

## Aircraft and Owner/Operator Information

| | | | |
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| **Aircraft Make:** | Rockwell | **Registration:** | N707BP |
| **Model/Series:** | 690-A 690-A | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | No |
| **Airworthiness Certificate:** | Aerobatic; Normal | **Serial Number:** | 11326 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 8 |
| **Date/Type of Last Inspection:** | 07/29/1993, 100 Hour | **Certified Max Gross Wt.:** | 9000 lbs |
| **Time Since Last Inspection:** | 3 Hours | **Engines:** | 2 Turbo Prop |
| **Airframe Total Time:** | | **Engine Manufacturer:** | GARRETT |
| **ELT:** | Installed | **Engine Model/Series:** | TPE-331-5 |
| **Registered Owner:** | MOTEL DEVELOPERS, INC. | **Rated Power:** | |
| **Operator:** | MOTEL DEVELOPERS, INC. | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual Conditions | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | OFK, 1572 ft msl | **Distance from Accident Site:** | 2 Nautical Miles |
| **Observation Time:** | 1715 CDT | **Direction from Accident Site:** | 300° |
| **Lowest Cloud Condition:** | Unknown / 25000 ft agl | **Visibility** | 15 Miles |
| **Lowest Ceiling:** | Broken / 25000 ft agl | **Visibility (RVR):** | 0 ft |
| **Wind Speed/Gusts:** | 9 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 170° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29 inches Hg | **Temperature/Dew Point:** | 32°C / 25°C |
| **Precipitation and Obscuration:** | | | |
| **Departure Point:** | MOUNTAIN HOME, AR (BPK) | **Type of Flight Plan Filed:** | None |
| **Destination:** | | **Type of Clearance:** | None |
| **Departure Time:** | 0000 | **Type of Airspace:** | Class G |

## Airport Information

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| **Airport:** | KARL STEFAN MEMORIAL (OFK) | **Runway Surface Type:** | |
| **Airport Elevation:** | 1572 ft | **Runway Surface Condition:** | |
| **Runway Used:** | 0 | **IFR Approach:** | None |
| **Runway Length/Width:** | | **VFR Approach/Landing:** | |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Destroyed |
| **Passenger Injuries:** | 3 Fatal | **Aircraft Fire:** | In-Flight |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | Unknown |
| **Total Injuries:** | 4 Fatal | **Latitude, Longitude:** | |

## Administrative Information

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| **Investigator In Charge (IIC):** | FRANK S GATTOLIN | **Report Date:** | 09/30/1994 |
| **Additional Participating Persons:** | JERRY CROWLEY; LINCOLN, NE<br>HOWARD WHEELOCK; LINCOLN, NE<br>DAN MONTGOMERY; EVERRETT, WA | | |
| **Publish Date:** | | | |
| **Investigation Docket:** | NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/. | | |