National Transportation Safety Board
Aviation Accident Final Report

Location:	San Jon, NM	**Accident Number:**	DEN01FA098
Date & Time:	05/14/2001, 2322 MDT	**Registration:**	N221CH
Aircraft:	Beech King Air B90	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot was flying a pressurized airplane at 25,000 feet (cabin altitude of 10,000 feet). For approximately 43 minutes before the accident, ARTCC called the pilot approximately six times and asked him to correct his altitude. Two transmissions from the pilot, between 2305 and 2311, were made with "slurred, and unclear speech." A 2 minute period followed with over 30 hot mike transmissions in which heavy breathing could be heard in some. At 2318:20, the pilot's last transmission was "ah Charlie Hotel, we, we've a little bit of a problem here. We're in a descent, we'll straighten it out in a minute." Witnesses observed the airplane spin into ground. The pilot's autopsy revealed moderate emphysema in his lungs with the presence of air filled bullae measuring up to 3 cm. On the two flights before the accident flight, the owner of the aircraft said that the pilot slept 2 hours out of the 4.5 hours of flight. Several friends of the pilot reported that he was also observed to "easily doze" off while on the ground, but he did so more regularly and for longer time periods while flying.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain aircraft control due to his incapacitation for an undetermined reason. A contributing factor was the subsequent inadvertent stall/spin to the ground.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CRUISE

Findings
1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (C) INCAPACITATION - PILOT IN COMMAND
3. (F) STALL/SPIN - INADVERTENT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - OPEN FIELD

Factual Information

HISTORY OF FLIGHT

On May 14, 2001, at 2322 mountain daylight time, a Beech King Air B90, N221CH, was destroyed when it lost control in cruise flight, and spun to the ground near San Jon, New Mexico. The airline transport pilot, the sole occupant in the airplane, was fatally injured. The airplane was being operated by CMH Investments, Inc., Benton, Arkansas, under Title 14 CFR Part 91. Visual meteorological conditions prevailed for the personal, night, cross-country flight that originated 2 hours 19 minutes before the accident. The pilot was flying on an IFR flight plan.

The pilot flew to Tucson, Arizona (one en route stop), on May 10, 2001, with the airplane's owner and five other passengers. The owner said that the autopilot was used during that flight, and appeared to function normally. He said that the pilot stayed with him over the weekend and was scheduled to return to Springdale, Arkansas, on Tuesday, May 15, 2001. Late in the afternoon, on the day of the accident, the pilot received a telephone call requesting that he fly a trip out of Springdale, early Tuesday morning. The pilot decided to fly to Springdale that night, to position himself for the early flight on Tuesday.

The pilot requested that the airplane be "topped off," and the fuel servicing personnel put 134 gallons of fuel in the airplane. The pilot received a weather briefing, and filed an IFR flight plan (Tucson to Socorro, direct Springdale). Tucson tower reported the airplane was airborne at 2103. Albuquerque Air Route Traffic Control Center (ARTCC) radar data indicates that the airplane departed to the northwest, and approximately 5 minutes later was flying approximately 060 degrees. The radar data indicates that over the next 17 to 18 minutes, the airplane climbed at approximately 785 feet per minute and reached an altitude of 21,200 feet. The pilot had filed for a cruise altitude of 25,000 feet (the radar data for the next 1 hour 40 minutes was not saved by ARTCC).

Albuquerque ARTCC records indicate that at 2139, they radioed the pilot to check his altimeter setting at 29.92 inches because radar returns were showing him 400 feet high (25,400 feet). The pilot responded with "affirmative." At 2246, the pilot was again asked if he would verify that his altimeter was set at 29.92 inches because radar was showing him to be 300 feet high. The pilot responded, "we might be a little bit high, we'll correct that." At 2248, Albuquerque ARTCC notified the pilot that their altitude readout now showed the airplane 500 feet low (24,500 feet). The pilot responded, "I just can't get it right, can I, I'll get it straight here in a minute."

ARTCC documented, between 2305 and 2311, the airplane's altitude readout was 300 feet high, then 400 feet high, and then 700 feet high; the pilot responded to ARTCC inquiries with "slurred, unclear speech" to stand by a minute. At 2315:59, the airplane reached a maximum altitude of 26,300 feet. For the next approximate 2 minutes, more than 30 hot mike transmissions were recorded in which heavy breathing could be heard in some. At 2318:20, the pilot's last transmission was "ah Charlie Hotel, we, we've a little bit of a problem here. We're in a descent, we'll straighten it out in a minute." A warning horn could be heard in the background during this last transmission.

The Albuquerque Air Route Traffic Control Center (ARTCC) reported losing radar contact with the airplane at 2319. Several witnesses in the San Jon, New Mexico, reported seeing the

airplane "fall" out of the sky. Another witness said that he saw the airplane's navigation lights alternating red and green as it rotated from the sky. One witness said that the engines "sounded to him like they were under full power."

PERSONNEL INFORMATION

According to Federal Aviation Administration (FAA) records, the pilot received his airline transport pilot certificate on July 13, 1981. He reported on his last FAA medical application, dated April 2, 2001, that he had accumulated 16,800 hours of flight experience. An insurance application for the airplane, dated December 7, 2000, indicates that the pilot had 3,000 hours of flight experience in aircraft make and model. The pilot had successfully completed a recurrent ground and flight training course in the King Air B90 series aircraft on November 17, 2000. His flight logbook was indorsed, at that time, as having successfully completed his mandatory FAA flight review (FAR 61.56).

The pilot's wife said that the he was in very good health and he ran on a treadmill at the local family community center whenever he was in town. The pilot's current employer said that the pilot didn't run for exercise, but did walk very regularly at the family community center. He also said that the pilot shared several stories with him in which the pilot flew at altitudes of 14,000 to 15,000 feet, in non-pressurized aircraft, with no apparent physiological effects. On one occasion, while transporting a passenger (who was a smoker), the passenger complained to the pilot that she couldn't breath. The passenger reported the pilot smiled and said that he would fly at a lower altitude. They were at 16,500 feet.

On the flight from Springdale to Tucson, the owner of the aircraft said that the pilot slept 2 hours out of the 4.5 hour flight (the owner was a pilot without a current FAA medical). The owner said that the pilot was a "very good" pilot, but his sleeping while in the air had worsened over the last couple of years. Several friends reported that the pilot was also observed to "easily doze" off while on the ground, but he did so more regularly and for longer time periods while flying. Many people, in the Springdale community, reported to the investigator-in-charge about the pilot's propensity to "take cat naps" while flying. On one occasion, while flying a late night IFR flight back to Springdale, the pilot flew past his turn point and ARTCC personnel had to call him several times to get him to turn back on course.

AIRCRAFT INFORMATION

The airplane was a twin engine, propeller-driven, eight seat, pressurized aircraft, which was manufactured in 1969 by Beech Aircraft Company. The airplane was powered by two PT6A-20 turboprop engines which had a maximum takeoff rating of 550 horsepower. Both engines were last inspected on September 23, 2000; no problems were found with them at that time. The aircraft records indicate that the airframe had approximately 7,557 hours of flight time on it at the time of the accident. The airplane held 384 gallons (approximately 192 gallons of usable fuel per side), and was topped off in Tucson, Arizona, before departure. The airplane manufacturer representative said that the estimated average fuel burn rate was 30 gallons per hour per engine. The pilot stated, on his IFR flight request to Automated Flight Service Station (AFSS) personnel, that he had 5 hours 30 minutes of fuel onboard.

The airplane's Pilot Operating Manual indicates that the cabin's pressurization system can be set for a maximum pressure differential of 4.6 pounds per square inch. This equates to the following: if the airplane is at 25,000 feet above mean sea level (msl), the interior of the cabin is at 10,000 feet msl. Federal Aviation Regulation Part 91 Section 91.211, states that

supplemental oxygen is required for the flight crew if cabin pressure altitudes are above 12,500 feet msl up to and including 14,000 feet msl for more than 30 minutes duration, or cabin pressure altitudes continuously above 14,000 feet msl. Pressurized cabin aircraft need supplemental oxygen for flights above 25,000 feet msl.

The airplane was equipped with two separate systems for cabin pressurization. The left engine had an engine driven hydraulic system which drives a supercharger for air pressure, and bleed air from the right engine provides a second source of air pressure. The pilot may select either system, or set the cabin pressurization system to auto. A negative outflow valve and a safety cabin pressurization valve, both located near the aft cabin bulkhead, control and limit the cabin's pressure level.

METEOROLOGICAL INFORMATION

At 2253, the weather conditions at the Tucumcari Municipal Airport, Tucumcari, New Mexico (elevation 4,065 feet), 280 degrees 14 nautical miles (nm) from the accident site, were as follows: wind 210 degrees at 12 knots; visibility 10 statute miles; clear of clouds; temperature 66 degrees Fahrenheit; dew point 50 degrees Fahrenheit; altimeter setting 29.98 inches of mercury. The moon (56 percent visible disk) did not rise until 0124 on May 15, 2001, approximately 2 hours 2 minutes after the accident.

Local residents reported that the atmosphere was "very clear" and the visibility was "unlimited" at the time of the accident.

WRECKAGE AND IMPACT INFORMATION

The airplane impacted on a gently rolling sparsely covered field, with 4 to 8 foot high brush and cactus (elevation 4,100 feet; N35 degrees, 5.21 minutes; W103 degrees, 21.21 minutes). The impact site was 2 nm north of the great circle route from Socorro to Springdale. The longitudinal axis of the airplane was oriented 185 degrees; the wings were level, and there was no ground scar leading to the wreckage. There were three holes in the ground, oriented in a straight line, 8 feet forward of the airplane and approximately a 30 degree rotation to the right. The hole to the right had a single propeller blade embedded in it, the center hole had the airplane’s radar antenna lying in it, and the left hole was empty.

All of the airplane's major components were accounted for at the accident site. The flight control surfaces were all identified and their control cables were intact. The landing gear was in the up position, and the flaps were in the up position. All the cockpit controls and instrumentation were consumed by fire. The burned remains of the engine controls indicate that the left engine controls were full forward, and the right engine was full aft. The burned fuselage (looking front to aft) was bowed towards the left, and the left wing was swept rearward.

The right propeller was separated from it's engine, and one of it's three blades was separated from it's hub. The separated blade had leading edge mechanical polishing and chordwise striations. All three blades exhibited "S" twisting. The left propeller had one tightly curled blade, and the two remaining blades exhibited some "S" twisting.

No preimpact engine or airframe anomalies, which might have affected the airplane's performance, were identified.

MEDICAL AND PATHOLOGICAL INFORMATION

The University of New Mexico's School of Medicine's Office of the Medical Investigator, Albuquerque, New Mexico, performed an autopsy on the pilot on May 16, 2001. The doctor did identify moderate emphysema in the pilot's lungs with the presence of air filled bullae measuring up to 3 cm (1.2 inches). The liver exhibited moderate fatty change (most commonly seen in the setting of chronic alcohol use). The autopsy also revealed the presence of fractures of both ankles and of the left forearm which are consistent with the pilot bracing against the "floor boards" and the flight controls of the aircraft prior to the crash.

The FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma, performed toxicology tests on the pilot. According to CAMI's report (#200100124001), the pilot's blood was tested for carbon monoxide, cyanide, volatiles (ethanol), and drugs with negative results.

ADDITIONAL DATA

The airplane, including all components and logbooks, was released to a representative of the owner's insurance company on May 16, 2002.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	**Age:**	61, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	04/09/2001
Occupational Pilot:		**Last Flight Review or Equivalent:**	11/15/2000
Flight Time:	16800 hours (Total, all aircraft), 3000 hours (Total, this make and model), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N221CH
Model/Series:	King Air B90	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	LJ-436
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	09/23/2000, Annual	**Certified Max Gross Wt.:**	9650 lbs
Time Since Last Inspection:	65 Hours	**Engines:**	2 Turbo Prop
Airframe Total Time:	7557 Hours at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	PT6A-20
Registered Owner:	CMH Investments, Inc.	**Rated Power:**	550 hp
Operator:	CMH Investments, Inc.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Night/Dark
Observation Facility, Elevation:	TCC, 4065 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	2253 MDT	**Direction from Accident Site:**	100°
Lowest Cloud Condition:	Clear	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.98 inches Hg	**Temperature/Dew Point:**	19°C / 10°C
Precipitation and Obscuration:			
Departure Point:	Tucson, AZ (TUS)	**Type of Flight Plan Filed:**	IFR
Destination:	Springdale, AR (ASG)	**Type of Clearance:**	IFR
Departure Time:	2103 MDT	**Type of Airspace:**	Class A

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	35.086944, -103.353611

Administrative Information

Investigator In Charge (IIC):	James F Struhsaker	**Report Date:**	04/18/2003
Additional Participating Persons:	Tamara Bell; Federal Aviation Administration; Albuquerque, NM Paul Yoos; Raytheon Aircraft Company; Wichita, KS		
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/.		