National Transportation Safety Board
Aviation Accident Final Report

Location:	KANSAS CITY, MO	**Accident Number:**	CHI95LA053
Date & Time:	12/08/1994, 2038 CST	**Registration:**	N5647D
Aircraft:	BEECH E18S	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

DURING ARRIVAL AT NIGHT IN FOG AND DRIZZLE, THE PILOT WAS CLEARED FOR AN ILS RUNWAY 1L APPROACH. WHILE ON THE APPROACH, SHE REPORTED ENCOUNTERING MODERATE RIME ICE. RADAR DATA SHOWED THAT THE AIRPLANE CONTINUED INBOUND ON THE LOCALIZER UNTIL IT NEARED THE MIDDLE MARKER, THEN IT DEVIATED ABOUT 20 DEGREES LEFT AND COLLIDED WITH THE GROUND, ABOUT 300' SHORT AND 300' LEFT OF THE THRESHOLD. ACCORDING TO WITNESSES, THE AIRPLANE STOPPED ITS DESCENT AND SLOWED DOWN, SHORTLY BEFORE ENTERING A STEEP DESCENT AND A SPIN. AN ON-SCENE INVESTIGATION REVEALED NO PREIMPACT AIRFRAME, CONTROL SYSTEM, OR POWERPLANT ANOMALIES. THE WINGS HAD 1/4 INCH OF ICE ON THE LEADING EDGE AND A 1/2 INCH HIGH RIDGE OF ICE, PARALLEL TO THE DEICING BOOTS, ABOUT 3 INCHES AFT OF THE BOOTS. THE COCKPIT AND WINDSHIELD HEATING SYSTEM WERE FOUND IN THE 'OFF' POSITION. THE PILOT'S LOGBOOK WAS NOT AVAILABLE FOR INSPECTION. COMPANY RECORDS SHOWED SHE HAD PASSED A 14 CFR PART 135 CHECKRIDE ON MAY 20, 1994. THE FAA CHECKRIDE FORM WAS ADMINISTERED AND SIGNED BY THE CHIEF PILOT. HOWEVER, OTHER RECORDS/INFORMATION SHOWED THE CHIEF PILOT WOULD NOT HAVE BEEN ABLE TO HAVE GIVEN THE CHECKRIDE ON THAT DATE.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE PILOT TO MAINTAIN ADEQUATE AIRSPEED ON FINAL APPROACH, WHICH RESULTED IN AN INADVERTENT STALL/SPIN. FACTORS RELATED TO THE ACCIDENT WERE: THE ADVERSE WEATHER (ICING) CONDITIONS, THE ACCUMULATION OF AIRFRAME/WING ICE, THE PILOT'S IMPROPER USE OF THE ANTI-ICE/DEICE EQUIPMENT, INADEQUATE TRAINING OF THE PILOT CONCERNING FLIGHT IN ICING CONDITIONS, AND INADEQUATE SURVEILLANCE OF THE OPERATION BY THE CHIEF PILOT (COMPANY/OPERATOR MANAGEMENT).

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH - FAF/OUTER MARKER TO THRESHOLD (IFR)

Findings
1. LIGHT CONDITION - DARK NIGHT
2. (F) WEATHER CONDITION - ICING CONDITIONS
3. (F) AIRFRAME - ICE
4. (F) WING - ICE
5. (F) ANTI-ICE/DEICE SYSTEM - IMPROPER USE OF - PILOT IN COMMAND
6. (C) AIRSPEED - INADEQUATE - PILOT IN COMMAND
7. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND
8. (F) INADEQUATE TRAINING - PILOT IN COMMAND
9. (F) INADEQUATE SURVEILLANCE OF OPERATION - COMPANY/OPERATOR MGMT

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: APPROACH

Factual Information

On December 8, 1994, at 2038 central standard time (cst), a Beech E-18S, N5647D, operated by Cape Central Airlines, Incorporated, of Cape Girardeau, Missouri, and piloted by an airline transport rated pilot, was destroyed during a collision with the ground while on an ILS approach to runway 1L at the Kansas City International Airport, Kansas City, Missouri. The 14 CFR Part 135 flight was operating on an instrument flight plan. Instrument meteorological conditions prevailed at the time of the accident. The pilot was hospitalized in critical condition and later succumbed to her injuries. The flight departed Sedalia, Missouri, at 1952 cst.

Before departing on the accident flight the pilot obtained two weather briefings from the FAA's Automated Flight Service Station at Columbia, Missouri. Her first weather briefing, a standard IFR briefing, was at 1646 cst. During this briefing she was advised of an AIRMET calling for rime and mixed icing below 16,000 feet mean sea level for her route of flight and destination. The weather briefer provided the pilot with two PREPS concerning inflight icing at her destination airport. The terminal forecast for her destination called for light snow and fog at her estimated time of arrival.

The pilot obtained an update weather briefing at 1736 cst. During this briefing she had asked for, and was given, three surface weather sequence reports for her destination airport. One was the current report and two were previous hourly reports. The briefer did not give her an updated terminal forecast for her destination. The pilot did not request an updated terminal forecast for her destination. The three hourly weather reports showed varying visibilities and ceilings. Icing conditions were not discussed during this briefing.

During N5647D's approach to the airport, the pilot was given heading instructions and told to expect an ILS 1L approach. After receiving a fourth heading change by air traffic control (ATC), the pilot asked: "...people reporting ice all the way down the approach[?]" ATC responded by saying, "Yea, I'm gonna put you on about a 15-mile final or so tower just called for a little extra room." The pilot responded, "Okay cause I'm starting to pick up moderate rime [ice] out here."

A short time later the controller asked, "...did the icing get any better as you got down lower or is it about as bad." The pilot responded "Oh, it's about the same." Shortly after the conversation the pilot was told to contact the control tower. She did this and was cleared to land. No further comments about airplane icing were made by the pilot.

Based on radar tracking data, N5647D flew the localizer inbound until it neared the approach's middle marker. Then the airplane deviated about 20 degrees to the left and collided with the ground about 300 feet short of the runway threshold and 300 feet west of its left edge.

According to two witnesses, N5647D approached the runway slowly after it descended below the clouds. One witness said that after it came out of the clouds the airplane leveled off and slowed "...even more until it appeared to ... almost stop in midair." Both witnesses said the airplane appeared to spin before it collided with the ground.

Two other witnesses observed N5647D descend vertically toward the ground. One witness said he saw the airplane collide with the ground. The second one stated the airplane looked like it was in slow flight before it descended vertically toward the ground.

The pilot's logbook flight information was not found. According to friends of the pilot, the

president of the company operating N5647D transported the pilot's logbooks to her parents. The parents stated they never received their daughter's logbooks. According to the company's FAA Principal Operations Inspector (POI), the company president stated the logbooks were at the funeral home with the pilot. The funeral home representative said no pilot logbooks were in their facility during the handling of the pilot's funeral services.

The company's pilot records showed the pilot had a total time of 2,523 hours on January 27, 1994. The records show she had 569 hours of multi-engine airplane time. Her May 20, 1994, flight training record showed she received 4.1 hours dual instruction in the BE-18. This form was signed by the chief pilot. The pilot's FAA Form 8410.3, Airman Competency and Proficiency Check, stated she was pilot-in-command (PIC) qualified in the BE-18 on May 20, 1994. The chief pilot signed this form. The pilot's company line check, between Sedalia and Kansas City, Missouri, was also signature dated by the chief pilot on May 20, 1994.

Investigation into the company's chief pilot's activity showed he arrived in Portsmouth, New Hampshire, 1215 eastern daylight time (edt) on May 20, 1994. The United States Customs Service arrival report showed that the chief pilot was reported to have flown into the United States from Kingston, Ontario, Canada on May 20, 1994. The pilot listed himself as second-in-command on this flight. According to flight and duty time logs for the flight's captain, the pilot's flight arrived in Johnstown, New York, at 1330 to 1400 edt on May 20, 1994. These records are appended to this report.

No records could be found that would show the chief pilot travelled to Sedalia, Missouri, during the late afternoon or evening of May 20, 1995.

The accident pilot and airplane were based at Sedalia, Missouri. According to fuel receipts from the Sedalia Airport, Sedalia, Missouri, the accident pilot had signed for refueling of another Beech BE- 18 on May 19, 20, and 21, 1994. A former lineman at the airport said the pilot took off from Sedalia, Missouri, at 2000 hours local, "...like clockwork." He said he had not seen her fly with the chief pilot during the aforementioned days. Determination about who administered the pilot's 14 CFR Part 135 PIC checkride is not possible due to missing records and information revealed during this investigation.

The company president stated the pilot came to the company with about 600 hours of flight time in a Piper PA-31-350. He said the pilot received about 20 hours dual instruction in the BE-18 before taking her 14 CFR Part 135 PIC checkride. According to the company president, she did not fly the airplane as a co-pilot before her PIC assignment. An FAA POI assisting with the investigation estimated the pilot's BE-18 pilot-in-command flight time was about 500 hours including her company training.

During an interview with the company's chief pilot he said the pilot had between 2 and 3 hours dual flight instruction in the BE-18 before passing her 14 CFR Part 135 PIC flight check. Another company pilot said the accident pilot had about 500 hours of BE-18 time at the time of the accident. He said the pilot flew instruments in the airplane at a "...rote level..." when he flew with her.

The on-scene investigation of the airplane and engines was conducted by an FAA Principal Maintenance Inspector (PMI). The PMI stated the wings had about 1/4 inch of ice on the leading edge. He said there was a ridge of ice approximately 1/2 inch high that paralleled the wing's deicing boot. This ridge of ice was about 3 inches aft of the deicing boot's trailing edge.

Examination of the wreckage revealed that the pilot seats did not have shoulder harnesses.

Flight control continuity with cockpit mechanisms was established. Engine control cables and rods were intact but not connected to their respective components due to crash damage. Landing gear and flaps were in full down position.

Examination of both engines revealed mechanical continuity during rotational action. The accessory drive operation was confirmed during the rotational action. The spark plugs electrode and ignitor end were colored tan/gray. No deposits on their electrodes were observed. Both engines' oil screens were clean. Magnetos from both engines were not able to be tested due to collision damage.

The PMI noted that the windshield defroster and supply knob was "OFF", and the cockpit hot air valve control was pulled out about 2 1/4 inches. The co-pilot's cold air control knob was in the "ON" position. Cabin cold air control was off. Location of the defroster controls is behind the co-pilot's seat and the cockpit hot air valve is located on the floor behind the co-pilot's chair. Based upon this information, the cockpit heating and defrost systems would not have been operating.

Examination of N5647D's wreckage revealed it was not certified for flight into known icing. Wing ice lights and heated fuel vents were not found on the airframe. Beech Aircraft Corporation also required "Antennae (Beech installed antennae have been substantiated for icing conditions, other installation must be equivalent to Beech's). Antennae ice certification was not able to be determined due to a lack of records. The list of required equipment is appended to this report.

An autopsy was performed by a private company in Kansas City, Missouri. Dr. Bonita J. Peterson was the pathologist who stated the pilot's death was a result of "...severe head injury." Dr. Peterson's autopsy report stated that no body fluids were "...retained because of the interval between the accident and the death." Consequently an FAA Civil Aeromedical Institute toxicology analysis was not conducted.

The wreckage was released to Mr. Bud Childress of Midwest Accident Company of Salinas, Kansas.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	**Age:**	36, Female
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	Seatbelt
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	11/14/1994
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	2523 hours (Total, all aircraft), 500 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	BEECH	**Registration:**	N5647D
Model/Series:	E18S E18S	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	BA364
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	11/21/1994, Annual	**Certified Max Gross Wt.:**	9300 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	P&W
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	R-985-AN-14B
Registered Owner:	CAPE CENTRAL AIRWAYS	**Rated Power:**	450 hp
Operator:	CAPE CENTRAL AIRWAYS	**Operating Certificate(s) Held:**	On-demand Air Taxi (135)
Operator Does Business As:		**Operator Designator Code:**	EFPA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Night/Dark
Observation Facility, Elevation:	MCI, 1026 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	2039 CST	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Unknown / 0 ft agl	**Visibility**	3 Miles
Lowest Ceiling:	Overcast / 500 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	0°C / -1°C
Precipitation and Obscuration:			
Departure Point:	SEDALIA, MO (DMO)	**Type of Flight Plan Filed:**	IFR
Destination:	, MO (MCI)	**Type of Clearance:**	IFR
Departure Time:	1952 CST	**Type of Airspace:**	Class E

Airport Information

Airport:	KANSAS CITY INTERNATIONAL (MCI)	**Runway Surface Type:**	Concrete
Airport Elevation:	1026 ft	**Runway Surface Condition:**	Wet
Runway Used:	1	**IFR Approach:**	ILS
Runway Length/Width:	10801 ft / 150 ft	**VFR Approach/Landing:**	Full Stop

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	FRANK S GATTOLIN	**Report Date:**	09/24/1995
Additional Participating Persons:	EDWARD ROSENBERGER; KANSAS CITY, MO DAN MOREFORD; KANSAS CITY, MO LOUIS GROSSO; ALBANY, NY		
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/.		