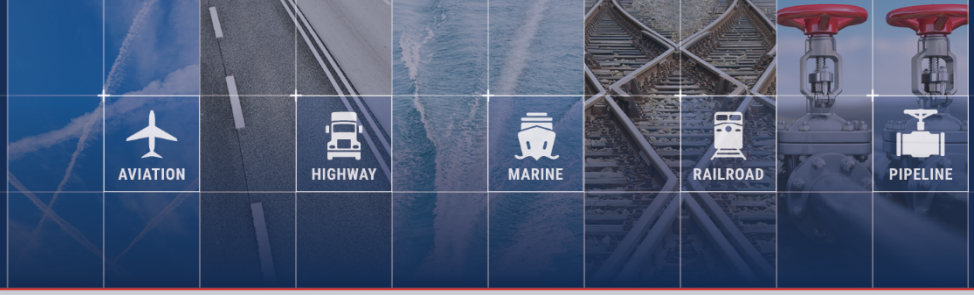

Aviation Investigation Final Report

Location:	WICHITA, Kansas	**Accident Number:**	CHI94FA222
Date & Time:	July 7, 1994, 08:30 Local	**Registration:**	N107JT
Aircraft:	BEECH A36	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	4 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

WITNESSES REPORTED THE AIRCRAFT DEPARTED ON RUNWAY 18 AT THE SAME TIME A STRONG NORTHERLY GUST FRONT ARRIVED AT THE AIRPORT. REFLECTIVITY PLOTS RECORDED BY THE NATIONAL WEATHER SERVICE FACILITY IN WICHITA, KANSAS, SHOW A LEVEL 6 THUNDERSTORM WAS ADJACENT TO THE AIRPORT AT THE TIME OF THE ACCIDENT WITH AN ABRUPT WIND SHIFT AND GUSTS TO 58 KNOTS. ONE WITNESS SAID THE AIRPLANE NOSE PITCHED UP AND THE LEFT WING DROPPED AS IF THE AIRPLANE WAS GOING TO ENTER A SPIN. HE SAID THE ENGINE SOUNDED LIKE IT WAS PRODUCING FULL POWER. EXAMINATION OF THE WRECKAGE DISCLOSED NO EVIDENCE OF PREIMPACT MECHANICAL MALFUNCTION. THE WEIGHT OF THE AIRPLANE WAS 183 POUNDS IN EXCESS OF THE MAXIMUM TAKEOFF WEIGHT AND THE CENTER OF GRAVITY WAS AFT OF THE LIMIT SPECIFIED IN THE PILOT OPERATING HANDBOOK FOR THE MAXIMUM GROSS WEIGHT.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's attempt to take off into known adverse weather and the subsequent stall. Factors were the thunderstorm, the tailwind, and the excessive airplane gross weight and aft center of gravity.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) WEATHER CONDITION - THUNDERSTORM,OUTFLOW
2. (F) WEATHER CONDITION - TAILWIND
3. (F) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND
4. (C) FLIGHT INTO KNOWN ADVERSE WEATHER - ATTEMPTED - PILOT IN COMMAND
5. (C) STALL/MUSH - INADVERTENT - PILOT IN COMMAND

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

Factual Information

HISTORY OF FLIGHT

On July 7, 1994, at 0830 central daylight time, a Beech BE-A36, N107JT, was destroyed during takeoff at the Colonel James Jabara Airport in Wichita, Kansas. The private pilot and three passengers sustained fatal injuries. The sole surviving passenger sustained serious injuries. The personal flight was conducted under 14 CFR Part 91 in instrument meteorological conditions. An IFR flight plan was filed to Colorado Springs, Colorado.

According to a friend of the pilot, the purpose of the flight was to travel to a camping vacation at the Rocky Mountain National Park. The pilot telephoned the Wichita Flight Service Station (FSS) at 0537. He requested "information for an IFR flight." The briefer advised the pilot of "a severe thunderstorm watch" north of his route, a "pretty severe line of thunderstorm activity", and a convective sigmet. The briefer stated "looks like you should be able to slide around the southern edge uh south of the Dodge City area to get around that area." The pilot filed an IFR flight plan, proposing a departure time of 0900.

At 0830 several employees of Midwest Corporate Aviation, a fixed base operator (FBO) at the Jabara Airport, were working on the ramp securing aircraft in preparation for a severe thunderstorm which was approaching the airport from the northwest. One lineman reported he was watching the accident airplane because he could not believe anyone would try to takeoff in such severe weather.

Several employees of Lifewatch, a local air ambulance service, witnessed the accident from the south end of the ramp. They reported the aircraft took off on runway 18 at the same time a strong northerly gust front arrived at the airport. Witnesses said the aircraft reached a maximum altitude of 50 to 75 feet and was pitching and banking severely.

One witness, a Lifewatch pilot, said the nose pitched up and the left wing dropped as if the airplane was going to enter a spin. He said the engine sounded like it was producing full power. The aircraft descended without spinning. He did not actually see the airplane impact the terrain, but it appeared the left wing would hit first as it descended below his line of sight.

PERSONNEL INFORMATION

A friend reported that the pilot "actively attended aviation safety seminars." Mr. Cliff Soner of The American Bonanza Society, Wichita, Kansas, reported that the pilot attended at least one of their weekend seminars. The curriculum included a chapter on weather hazards and a section on thunderstorms.

METEOROLOGICAL INFORMATION

Reflectivity plots recorded by the National Weather Service facility in Wichita, Kansas, at 0831 show a level 6 thunderstorm was adjacent to the Jabara Airport. Several witnesses on the ground stated the sky was extremely dark and it was apparent to them that a severe thunderstorm was en route.

Doppler plots were measured at a .5 degree elevation from the radar site at the Wichita, Mid-Continent Airport. This inclination provides the wind magnitude in the vicinity of the Jabara Airport, 12 miles away, at an altitude of about 500 feet. The doppler plots show changes in wind magnitude of 90 knots within a few miles of the Jabara Airport.

At 0750, the weather reporting facility on the Jabara Airport measured the winds from 120 degrees at 14 knots. At 0835, a few minutes after the accident, the winds were measured from 320 degrees at 51 gusting to 58 knots. Two independent weather observation facilities, located at schools near the airport, reported the magnitude of the gust front was 63 knots.

WRECKAGE AND IMPACT INFORMATION

The NTSB on scene investigation began about 1600 on July 7, 1994. The first ground scar was approximately 1000 feet from the south end of runway 18 on a bearing of 140 degrees. The terrain was flat and grassy. The wreckage path followed a magnetic course of 145 degrees. Fragments of red wing tip lens were discovered in the first ground scar. 57 feet further, three propeller slashes were adjacent to the main impact crater. Next were the propeller, left wing, nose landing gear, and sections of the firewall area. A swath of oil extended from the main impact crater to the engine, 292 feet from the first ground scar. The main wreckage was located at 310 feet from the first ground scar, oriented on a heading of 360 degrees. A piece of the engine cowling, papers, and debris were scattered for 600 feet to the south into a field of tall grass.

Assorted items of camping equipment were scattered near the main wreckage. Each item was inventoried and weighed as it was removed. The tabulated weight was 299 pounds. An additional 25 pounds of miscellaneous items were discovered later.

The left wing was fractured from the fuselage near the root. The wing tip was crushed upward at an angle corresponding to 42 degrees of bank and 5 degrees nose down pitch. The right wing tip leading edge was crushed aft. The flaps were in the up position and the landing gear bellcrank was in the down position.

The fuselage, forward of the wing spar, was fragmented. The aft cabin area was intact with the right side torn open. The aft fuselage and empennage were twisted and compressed. Examination of control continuity revealed no anomalies. The elevator trim tab position was measured at 8 to 9 degrees tab down.

The fuel selector was in the left tank feed position. The left fuel tank was ruptured. The fuel line from the right tank was fractured and leaking fuel. 15 gallons of clear blue fuel were drained from the right tank.

The propeller exhibited severe torsional bending and chordwise scratching. Charred grass was found under a fractured section of the exhaust manifold. The engine was completely separated from the engine mount. The crankshaft was sheared near the flange. Subsequent engine and propeller examination revealed no evidence of preimpact malfunction.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy of the pilot was conducted July 7, 1994, by the Sedgwick County Coroner, Wichita, Kansas. The results of FAA toxicological testing of specimens from the pilot were negative for all tests conducted except for pseudoephedrine, phenylpropanolamine, and salicylate.

SURVIVAL ASPECTS

The surviving passenger was a seven year old male, seated in seat 3B. A flight paramedic, one of the first rescuers at the scene, said he arrived at the accident site about three minutes after the accident occurred. He said the boy was thrown clear of the airplane and was lying on the ground, several feet from the open fuselage. The other two passengers in the aft section of the cabin were wearing seat belts. During an interview, a trauma nurse at the receiving hospital said the boy had two broken legs from a suitcase which was flailing in the aft cabin area. She said he had no abdominal bruising or seat belt injuries.

TESTS AND RESEARCH

The first two slash marks in the wreckage path were measured 25 inches apart. A nominal engine speed of 2600 rpm indicates the ground speed of the airplane was about 106 knots when the propeller impacted the terrain.

ADDITIONAL INFORMATION

Airport fuel records show the accident airplane was serviced with full fuel the night of July 6. Airport activity logs show no record of the airplane operating until the accident flight. The co-owner of the airplane stated he did not believe the airplane was operated in the interim. Current weight and balance data, according to the co-owner, was dated August 11, 1993, and was conducted by Peace Aircraft Services, Inc., Colorado Springs, Colorado. The maximum weight for takeoff specified in the pilot operating handbook is 3,600 pounds. The aft center of gravity limit, at the maximum gross weight is 87.7 inches.

	Weight	Arm	Moment
Basic Operating Weight	2347	78.8	1849.512

Pilot		203	79.2	160.776	Passengers	1B	98	77.1	75.558
	2A	117	113	132.21					
	2B	199	115	228.85					
	3B	62	152	94.24					
Baggage		50	96.5	48.25					
		278.75	152	423.7					
Removed seat	3A	-15	151	-22.65					
Zero Fuel Weight		3339.7	89.54	2990.446					
Fuel, 74 Gallons		444	75	333.0					
Total		3783.75	87.93	3323.446					

Parties to the investigation were the Federal Aviation Administration, Flight Standards District Office, Wichita, Kansas, Beech Aircraft Corporation, and Teledyne Continental Motors.

Following the on scene portion of the investigation, the wreckage was released to a representative of the owner, Eric C. Lugger of Howe Associates.

Pilot Information

Certificate:	Private	**Age:**	45,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 23, 1993
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1194 hours (Total, all aircraft), 985 hours (Total, this make and model), 15 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BEECH	**Registration:**	N107JT
Model/Series:	A36 A36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	E-841
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	August 8, 1993 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	100 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2382 Hrs	**Engine Manufacturer:**	CONTINENTAL
ELT:	Installed	**Engine Model/Series:**	IO-520-BA
Registered Owner:	C & H AVIATION SERVICES	**Rated Power:**	285 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	3KM ,1420 ft msl	**Distance from Accident Site:**	
Observation Time:	13:35 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Unknown	**Visibility**	2 miles
Lowest Ceiling:	Overcast / 500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	51 knots / 58 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	19°C
Precipitation and Obscuration:	N/A - None - Widespread dust		
Departure Point:	(3KM)	**Type of Flight Plan Filed:**	IFR
Destination:	COLORADO SPRING, CO (COS)	**Type of Clearance:**	IFR
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	COLONEL JAMES JABARA 3KM	**Runway Surface Type:**	Concrete
Airport Elevation:	1420 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	18	**IFR Approach:**	None
Runway Length/Width:	6100 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	3 Fatal, 1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Fatal, 1 Serious	**Latitude, Longitude:**	37.700126,-97.279006(est)

Administrative Information

Investigator In Charge (IIC):	Robbins, Wesley
Additional Participating Persons:	ANDREW K NELSON; WICHITA , KS RONALD E CENTER; WICHITA , KS KENNETH E STUERKE; WICHITA , KS SCOTT BOYLE; ARVADA , CO
Original Publish Date:	October 13, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=9382