National Transportation Safety Board
Aviation Accident Final Report

Location:	WASH. CT. HOUSE, OH	**Accident Number:**	NYC01FA007
Date & Time:	10/10/2000, 0145 EDT	**Registration:**	N2067C
Aircraft:	Beech E18S	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

The airplane was observed to depart normally for a positioning flight conducted during night visual meteorological conditions. In addition, the landing gear was observed to retract after takeoff. A witness who lived near the accident site heard a "loud" engine noise and observed the airplane just above the trees. The airplane then pitched down, impacted the ground, and exploded. The airplane impacted in a soy bean field about a 1/2 mile from the departure end of the runway. Two pairs of ground scars were observed at the beginning of the debris path. The initial pair of ground scars were about 2 to 3 feet in length and were located about 380 feet south of the main wreckage. A pair of 10 to 12 foot long ground scars were located about 10 feet forward of the initial ground scars and they contained portions of the left and right engines; respectively. There was no impact damage observed to the portion of the soy bean field located in-between the second ground scar and the main wreckage. Prior to the flight, maintenance personnel replaced a frayed elevator trim cable. The work was supervised and checked by the accident pilot. Examination of the airplane did not reveal any evidence of a pre-impact failure; however, a significant portion of the airplane was consumed in a post crash fire. Examination of the propellers revealed damage consistent with engine operation at the time of impact. The pilot reported 22,500 hours of total flight experience, with over 17,00 flight hours in make and model.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An undetermined event, which resulted in an off airport landing. A factor in this accident was the night light condition.

Findings

Occurrence #1: MISCELLANEOUS/OTHER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Findings
2. (F) LIGHT CONDITION - NIGHT

Factual Information

HISTORY OF FLIGHT

On October 10, 2000, about 0145 eastern daylight time, a Beech E18S, N2067C, operated by Northern Airmotive Corporation, was destroyed when it impacted terrain, shortly after takeoff from the Fayette County Airport (I23), Washington Court House, Ohio. The certificated airline transport pilot was fatally injured. Night visual meteorological conditions prevailed and no flight plan had been filed for the positioning flight destined for the Airborne Airpark (ILN), Wilmington, Ohio. The flight was conducted under 14 CFR Part 91.

According the operator, the airplane was being positioned to ILN, which was located about 20 miles west-southwest of I23, for a cargo flight to be conducted under 14 CFR Part 135. The pilot of the airplane was the owner of the company, and also held the positions of director of maintenance and flight operations.

The airplane was observed by two company mechanics to depart runway 04, a 5,100-foot long, 75-foot wide, asphalt runway. The mechanics stated that the airplane lifted off about half-way down the runway, and began to climb. One mechanic stated that he observed the airplane's landing gear retract. Both mechanics stated the airplane's engines sounded normal, and they both went inside a hanger.

A witness who lived in a house about 1,100 feet west of the accident site stated she heard a "loud" engine noise, and walked over to a window. She then heard the sound "cut-out" for a few seconds, and then heard a loud "eeeeee" sound. She looked out the window, and observed the airplane just above the trees. The airplane then pitched down, impacted the ground, and exploded. She did not see any smoke or flames coming from the airplane prior to accident. She did observe both a red and white light illuminated on the airplane.

The accident occurred during the hours of darkness approximately 35 degrees, 35 minutes north latitude, and 83 degrees, 24 minutes west longitude.

PERSONNEL INFORMATION

The pilot held an airline transported pilot certificate for multi-engine land airplanes, and a commercial pilot certificate for single engine land airplanes. The pilot's logbook was not located; however, the company chief pilot reported that the accident pilot had over 17,000 hours of flight experience in the Beech 18 and flew regularly.

The pilot's most recent application for a Federal Aviation Administration (FAA) second class medical certificate was dated November 2, 1998. At that time, she reported 22,500 hours of total flight experience, with 300 flight hours during the preceding 6 months.

AIRCRAFT INFORMATION

In addition to the accident pilot, who held an FAA airframe and powerplant certificate with an inspection authorization (IA), the company employed two other aircraft mechanics.

The airplane's current maintenance records were not located. The airplane was maintained under an FAA approved aircraft inspection program. Both mechanics, and the pilot's husband stated the airplane's maintenance records were "signed off" and kept by the pilot.

The airplane's most recent flight prior to the accident was on October 6, 2000. The pilot of that flight stated that he experienced no problems with the airplane, except a "hitch" while

manipulating the airplane's elevator trim wheel. The pilot informed the accident pilot, and an examination of the elevator trim cable revealed some fraying in the area near an elevator trim servo. At the time of the accident, the airplane was equipped with a manually actuated elevator trim tab; however, at one point the airplane incorporated an electric elevator trim system.

According to the mechanics, prior to the accident flight, the frayed elevator trim cable was replaced. In addition, the electric elevator trim servo was removed. The work was supervised by the accident pilot and after the trim cable was installed, the trim system was checked by the accident pilot. They further stated that the pilot used the elevator trim wheel to adjust the trim tab to full deflection, then exited the airplane and visually inspected the trim tab. She then re-entered the cockpit, adjusted the trim tab to the opposite full deflection, and again visually inspected the trim tab.

The airplane was not test flown after the cable replacement. One mechanic stated that the pilot was in a "real hurry" to get to ILN; however, he did not feel rushed.

METEOROLOGICAL INFORMATION

The weather reported at ILN, at 0154 was: wind from 250 degrees at 7 knots, visibility 10 statue miles, sky clear, temperature 41 degrees F, dew point 28 degrees F, altimeter 30.25 in/hg.

WRECKAGE INFORMATION

The airplane impacted in a soy bean field about a 1/2 mile from the departure end of the runway. The debris path measured approximately 380 feet, and was oriented on a magnetic heading of 045 degrees. Two pairs of ground scars were observed at the beginning of the debris path. The initial pair of ground scars were about 2 to 3 feet in length and were located about 380 feet south of the main wreckage. A pair of 10 to 12 foot long ground scars were located about 10 feet forward of the initial ground scars and they contained portions of the left and right engines; respectively. There was no impact damage observed to the portion of the soy bean field located in-between the second ground scar and the main wreckage.

The airplane came to rest upright on a magnetic heading of 165 degrees, and was partially consumed by a post crash fire. The rear 13 feet of the airplane was charred but intact. Both wings were intact outboard of their respective engines; however, the fabric which covered both wing ailerons was consumed. Additionally, the main cabin area was destroyed by fire.

The airplane incorporated a retractable tail-wheel landing gear configuration. The left main landing gear was found on the debris path about 165 feet south-southwest of the main wreckage. The right main landing gear was found about 160 feet north-northeast of the main wreckage. The tail-wheel remained attached to the fuselage, and was found in the extended position.

Flight control continuity was established from the cockpit area to all primary control surfaces.

The elevator trim tab was found in the full nose down position. The entire elevator trim cable was intact; however, the elevator trim wheel and portions of the airplane structure where the trim cable was routed through, was consumed in the post crash fire. The elevator trim cable could not be moved and was found fused to a portion of its mounting bracket at "bulkhead 10." It was noted that bulkhead 10, had sustained both impact and fire damage. The mounting bracket with the fused elevator trim cable attached, was removed from the airplane, and forwarded to the Safety Board's Metallurgical Laboratory, Washington, DC, for further examination.

The airplane was equipped with two Pratt and Whitney R-985, AN-14B engines.

The left engine was located approximately 83 feet north of the main wreckage. The left engine's cylinder baffles contained packed mud, and it was noted that the cylinders located at the 5, 6, and 7 o'clock positions sustained substantially more impact damage than the other cylinders. Six front spark plugs were removed from the left engine, and their electrodes were intact and light gray in color. The left engine carburetor fuel screen was removed and observed to be absent of contamination.

Examination of the left propeller revealed counterweight impact marks on the spinner dome, which indicated a low propeller blade angle. One of the propeller blades was bent forward and fractured about 10 inches outboard of the clamp, and the blade contained significant gouges mid-blade, on both the leading and trailing edges. A second propeller blade was bent aft about 90 degrees and twisted toward low pitch. The blade also contained leading edge damage and rotational scoring. A third propeller blade was turned in it's clamp toward high pitch; however, the blade was bent aft about 90 degrees and twisted toward low pitch. The blade also contained "s" bending and rotational scoring.

The right engine was located adjacent to the right wing. The right engine's cylinder baffles contained packed mud, and it was noted that the cylinders located at the 5, 6, and 7 o'clock positions sustained substantially more impact damage than other cylinders. Four front spark plugs were removed from the right engine, and their electrodes were intact and light gray in color. The right engine carburetor had separated from the engine and was not located.

Examination of the right engine propeller revealed a counterweight impact mark from propeller blade number 2 on the spinner dome, which indicated a low propeller blade angle. One propeller blade was separated from clamp and found in the area of the initial ground impact. The blade was bent aft about 20 degrees and twisted toward low pitch. A second propeller blade was bent aft about 90 degrees and twisted toward low pitch. The blade also contained "S" bending and leading edge damage. The third propeller blade was bent aft about 45 degrees and twisted toward low pitch.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot, on October 10, 2000, by the Franklin County Coroner's Office, Columbus, Ohio.

Toxicological testing was conducted by the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma.

TESTS AND RESEARCH

Examination of the elevator trim mounting bracket with the fused elevator trim cable attached performed by a Safety Board Metallurgist’s revealed fracture features which were consistent with impact damage and a post crash fire.

ADDITIONAL INFORMATION

The airplane wreckage was released on October 11, 2000, to the chief pilot.

Pilot Information

Certificate:	Airline Transport; Commercial	**Age:**	59, Female
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
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:**	11/02/1998
Occupational Pilot:		**Last Flight Review or Equivalent:**	09/23/2000
Flight Time:	22500 hours (Total, all aircraft), 17500 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N2067C
Model/Series:	E18S E18S	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	BA-424
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	AAIP	**Certified Max Gross Wt.:**	10100 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:**	R985
Registered Owner:	NORTHERN AIRMOTIVE CORP	**Rated Power:**	450 hp
Operator:	NORTHERN AIRMOTIVE CORP	**Operating Certificate(s) Held:**	On-demand Air Taxi (135)
Operator Does Business As:		**Operator Designator Code:**	NAQA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Night
Observation Facility, Elevation:	ILN, 1077 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	0154 EDT	**Direction from Accident Site:**	240°
Lowest Cloud Condition:	Clear	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	5°C / -2°C
Precipitation and Obscuration:			
Departure Point:	WASHINGTON COUR, OH (I23)	**Type of Flight Plan Filed:**	None
Destination:	WILMINGTON, OH (ILN)	**Type of Clearance:**	None
Departure Time:	0145	**Type of Airspace:**	Class G

Airport Information

Airport:	FAYETTE COUNTY (I23)	**Runway Surface Type:**	Asphalt
Airport Elevation:	982 ft	**Runway Surface Condition:**	Dry
Runway Used:	4	**IFR Approach:**	None
Runway Length/Width:	5100 ft / 75 ft	**VFR Approach/Landing:**	Unknown

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:**	35.585000, -83.408889

Administrative Information

Investigator In Charge (IIC):	LUKE SCHIADA	**Report Date:**	06/03/2002
Additional Participating Persons:	STANLEY P FASKE; CINCINNATI, OH Harold R Barrentine; Wichita, KS Tom McCreary; Piqua, OH		
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/.		