



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	McGregor, TX	<b>Accident Number:</b>	DFW06FA205
<b>Date &amp; Time:</b>	09/02/2006, 0755 CDT	<b>Registration:</b>	N181Y
<b>Aircraft:</b>	Beech BE95 A-55	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The 5,000-hour instrument rated commercial pilot lost control of the twin-engine airplane during initial takeoff climb and crashed into the ground. The pilot was departing the uncontrolled airport on runway 17 on a planned 525-nautical mile cross-county flight. Witnesses at the airport reported that the airplane assumed a pronounced nose high attitude and rolled left, followed by the nose dropping toward the ground until ground impact. The airplane impacted the ground with the landing gear and flaps retracted. The airplane was fully serviced with fuel. The fuel was found to be clean. An extensive examination of the airplane failed to reveal any anomalies with the airframe, structure, or systems. Flight control continuity was established at the accident site. The engines were sent to the manufacturer's facility for examination, and no mechanical anomalies were found. The propellers were also shipped to the manufacturer's facility for examination and teardown. Both propellers were rotating at a low blade angle and not feathered at the time of the impact. Blade damage was consistent with both propellers operating with power on at the time of the impact. No mechanical defects were noted with either propeller. No anomalies were found during the autopsy and toxicological tests were normal. Visual meteorological conditions prevailed, with visibility in excess of 10 miles, and wind was from 140 degrees at 8 knots.

## 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 airspeed resulting in a stall and loss of control of the airplane.

## Findings

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

### Findings

1. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
  2. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND
  3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

### Findings

4. TERRAIN CONDITION - GROUND

## Factual Information

### HISTORY OF FLIGHT

On September 2, 2006, approximately 0755 central daylight time, a twin-engine Beech BE95 A-55 airplane, N181Y, was destroyed when it impacted terrain following a loss of control during takeoff initial climb from the McGregor Municipal Airport (PWG), near McGregor, Texas. The airplane was registered to a private individual and the pilot. The instrument rated commercial pilot, sole occupant of the airplane, was fatally injured. Visual meteorological conditions prevailed and an instrument flight plan was filed for the 14 Code of Federal Regulations Part 91 personal flight. The 525-nautical mile cross-country flight was originating at the time of the accident and was destined for Norfolk, Virginia, with an intermediate fuel stop at the Northwest Alabama Regional Airport (MSL), near Muscle Shores, Alabama.

Several witnesses located near the accident site reported observing the mishap and were interviewed by the NTSB investigator-in-charge (IIC).

The first witness, who was driving westbound on Highway 84 in front of a convenience store near PWG, reported that he observed an airplane at a low altitude in a slightly nose high attitude. The witness stated that the airplane suddenly pitched upwards and rolled into a very steep left turn. The airplane continued to descend into the ground in a left wing low attitude and "bursting into flames" upon ground impact. The witness added that he initially thought the airplane was a "crop duster" and added that at no time the airplane crossed south of Highway 84.

A second witness, who was also driving westbound on Highway 84 reported observing the airplane take off and was climbing out when the airplane "went into a hard bank to the left" and impacted the ground left wing first. The witness added that he did not see any smoke or flames originating from the airplane prior to it impacting the ground. After the airplane impacted the ground, the airplane "caught-on-fire and continued to skid across the open field."

A third witness, who reported being a professional pilot for a freight company, reported that while landing on runway 17, he observed the accident airplane holding short of the runway. The pilot rated witness added that while taxiing to the airport ramp, he observed the airplane performing what appeared to him a normal climb out. While the airplane was climbing through about 200 feet above ground level (agl), he observed the airplane suddenly pitch-upward and roll into a steep left bank. The witness stated that at no time did the airplane cross south of Highway 84, and it did not appear to him that the airplane was attempting to return to the airport. The witness added that he did not see the actual impact with the ground due to a hangar obstructing his view; however, he did observe that the "the airplane was trying to level the wings seconds before ground impact." The witness reported that he did not hear any radio communications on the Unicom frequency from the accident airplane.

The co-owner of the airplane visited the accident site. He reported that he had flown the airplane the day prior to the accidents and the airplane did not have any known operational deficiencies throughout the flight. The owner further reported that personnel at the FBO refueled the airplane for the planned cross-country flight the day prior to the accident, as requested. All four fuel tanks were reported to have been "topped off" with 100LL aviation fuel (143 gallons capacity).

A flight line technician, who refueled the airplane the day prior of the accident, was interviewed

by the IIC. The line technician confirmed that all four fuel tanks were topped-off. The FBO verified that the fuel station sump and vessels were free of debris, and fuel samples that were extracted were bright and clean on September 6, 2006. The refueling truck that was used to refuel the airplane was also examined and a sample was extracted. The fuel sample was bright and clean. Also, the truck filter was found to be free of debris.

According to the Federal Aviation Administration (FAA), an instrument flight rules (IFR) flight plan was filed but not activated prior to the flight. According to the filed flight plan, the proposed departure time was 0800 and the pilot had requested 7,000 feet for the initial assigned altitude, at a proposed true airspeed of 185 knots. The pilot was estimated arriving at MSL at 1058 that morning.

#### PERSONNEL INFORMATION

The 73-year old pilot held a commercial pilot certificate with ratings for airplane single and multi engine land, rotorcraft helicopter, and instrument airplane and helicopter. The pilot was issued a second-class medical certificate on December 7, 2005, with the restriction that the airman must wear corrective lenses and possess glasses for near and intermediate vision. The pilot reported on his last medical application that he had accumulated a total of 5,000 hours of flight time. The pilot was reported to have accumulated a total of 229-hours in the same make and model aircraft.

#### AIRCRAFT INFORMATION

The 1963-model, serial number TC-488, was a low wing, twin-engine airplane, configured for a maximum of 6 occupants, with a retractable landing gear. The airplane was powered by two Continental engines rated at 300 horsepower: left engine IO-520-ACE (converted from an A to an E), serial number 110354-4-A, and right engine IO-520-E, serial number 556396. According to airframe and engine logbooks, the airplane's most recent annual inspection was on August 30, 2006, with an airframe total time of 6,062.2 hours. The Hobbs meter read 531.4 hours. At the time of the last annual inspection, the records indicated that engine serial number 110354-4-A had 623.6 hours since major overhaul (TSMOH), and engine serial number 556396 had accumulated a total of 555.1 hours since major overhaul (TSMOH).

#### METEOROLOGICAL INFORMATION

At 0755, the automated surface observation system at PWG reported the wind from 140 degrees at 8 knots, visibility 10 statute miles, few clouds at 4,000 feet, few clouds at 4,800 feet, scattered clouds at 7,000 feet, temperature 26 degrees Celsius, dew point 21 degrees Celsius, and an altimeter setting of 29.97 inches of Mercury.

#### COMMUNICATION

According to personnel at the local fixed base operator (FBO) at PWG, no radio communications were received from the pilot of the accident airplane.

#### AERODRONE INFORMATION

The McGregor Executive Airport is located 4 miles west of the City of Waco, Texas, at an elevation of 592 feet. The airport does not have a control tower, but has a local area common traffic advisory frequency (CTAF) that also serves as a non-governmental communication facility (UNICON), which provides airport information on 122.8 megahertz (MHz). The airport features two asphalt runways. Runway 17/35 is 5,501-feet long and 75-feet wide, and Runway

04/22, which is 3,484-feet long and 55-feet wide. Both runways were found to be in good condition and properly marked.

#### WRECKAGE AND IMPACT INFORMATION

The airplane impacted a freshly plowed field approximately 0.17 miles on a heading of 119 degrees from the departure end of Runway 17. The Global Positioning System (GPS) coordinates recorded at the accident site using a hand held GPS unit were: Latitude 31 degrees 28.657 minutes North, and Longitude 097 degrees 18.926 minutes West, at a field elevation of 590 feet mean sea level. The wreckage energy path measured approximately 172 feet in length, and was oriented on a measured magnetic heading of 045 degrees. The impact heading of the airplane was recorded at 360 degrees, with a final resting place heading of 010 degrees.

Examination of the wreckage revealed that all aircraft components were located at the accident site. The landing gear and flaps were found in the retracted position. Flight control continuity was established throughout the airplane to the ailerons, rudder, and elevator from the center section of the fuselage.

The initial ground scar contained fragments of a red lens, found approximately 116 feet short of the resting place of the main wreckage. Fragments from a green lens were also found 51 feet short of the main wreckage. The left flap assembly was found 33 feet short of the main wreckage. The right propeller was 35 feet from the main wreckage. The left propeller was found 23 feet from the main wreckage. The cabin door was found 56 feet from the main wreckage.

The left and right engines exhibited thermal damage, but remained partially attached to the engine nacelles. Both of the propellers were separated from their respective engines, and exhibited impact damage to the forward portion of the propeller blades.

Left Hartzell propeller: Blade A, chordwise scratching, bent/curled opposite to the direction of rotation, and loose in the propeller hub. Blade B, spanwise scratching and blade twisting towards low pitch. Blade C, blade twisting and blade tip polishing (about 10 inches of the outboard portion of the blade). Right Hartzell propeller: Blade A, blade bent toward the noncambered side, with twisting opposite the direction of rotation, the leading edge exhibited gouging and chordwise scratching. Blade B, the blade exhibited polishing on 10 inches of its outboard portion, "S" bending and blade twisting, and chordwise scratching near the blade tip, with gouging on leading edge. Blade C, spanwise scratching on the blade that was bent toward the noncambered side, some chordwise scratching near the blade tip.

The right wing remained attached to the fuselage; however, post-impact fire destroyed most of the fuselage. The flap and aileron remained attached to the wing. The rear half of the aileron bell-crank remained attached to the wing, along with the flight controls cables. The aileron pushrod was attached to the aileron, and the aileron moved up and down freely. The green lens cap from the wingtip was separated. The main and auxiliary fuel tank caps were attached to the fuel tanks, and the right main landing gear was found inside the landing gear-well.

The left wing remained attached to the fuselage; however, post-impact fire destroyed most of the fuselage. The flap and aileron were separated from the wing. The left aileron bell-crank was destroyed. The left wing exhibited leading edge crushing from the wingtip to the engine nacelle, and the upper skin panels were torn free from the rivets. The red lens cap was separated. The left main landing gear was found inside the cabin area. The main and auxiliary fuel caps were found attached to the fuel tanks.

The left and right horizontal stabilizers remained attached to the fuselage. The left elevator appeared to be undamaged. The left horizontal stabilizer exhibited lower skin wrinkling and blistered paint. The right elevator remained attached to the stabilizer, but 31 inches of the elevator and elevator counterweight were separated. The rudder and vertical stabilizer remained attached to the fuselage. The flight control cables were manipulated forward of the front seats, and the rudder and elevators moved correctly. The rudder trim actuator measured 3.89 inches (0 degrees deflection). The left and right elevator trim actuators measured 1.26 and 1.27 inches (0 degrees tab deflection).

The cabin and cockpit were destroyed by impact forces and postimpact fire. The seat frames were all that remained of the seats and seat belts. The airplane was not equipped with shoulder harnesses for any of its occupants. The cabin door separated from the fuselage forward of the door hinges, and appeared to be intact. The door handle for the cabin door was found in the closed and latched position. The door window remained attached. The emergency exit window was separated from the fuselage and was found under the right wingtip.

The position of the fuel selectors could not be determined due to fire damage; however, both fuel selector valves were found with open ports. The aileron trim actuator measured 1.25 inches (4.75 degrees tab up). The right flap actuator measured 1.72 inches (0 degrees extended). The left flap actuator was destroyed by impact forces and postimpact fire.

The airplane and engines were recovered to Air Salvage of Dallas (ASOD), near Lancaster, Texas, on September 5, 2006, for further examination. At ASOD, the engines were removed and shipped to Teledyne Continental Motors, Inc. (TCM), near Mobile, Alabama, for further examination. The propellers were removed from the engines and shipped to Hartzell Propeller, Inc., of Piqua, Ohio, for further examination or testing.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on September 3, 2006, at the Southwestern Institute of Forensic Sciences, near Dallas, Texas. The autopsy was performed at the request of the Justice of the Peace, Precinct 5, McLennan County, Texas. The autopsy concluded that the cause of death was multiple blunt force injuries.

Toxicological testing on the pilot was performed by the FAA's Civil Aeromedical Institute (CAMI) Forensic and Accident Research Center, near Oklahoma City, Oklahoma, for carbon monoxide, cyanide, volatiles, and drugs. The result of these test were reported as negative, except for Ibuprofen, which was detected in the urine.

#### TESTS AND RESEARCH

On December 5, 2006, at Teledyne Continental Motors (TCM), engine serial number 110354-4-A, was examined under the supervision of the NTSB investigator-in-charge (IIC), with representatives from TCM and Raytheon Aircraft Company. The examination of the engine did not reveal any preimpact mechanical anomalies that would have prevented normal engine operation.

On December 6, 2006, at TCM, engine serial number 556396 was examined under the supervision of the NTSB IIC, with representatives from TCM and Raytheon Aircraft Company. The examination of the engine did not reveal any preimpact mechanical anomalies that would have prevented normal operation.

On January 25, 2007, at Hartzell Propeller, Inc., the propellers, model number PHC-C3YF-2UF with FC7663-2R blades, were examined under the supervision of a FAA representative from the Cincinnati Flight Standards District Office. The examination of the propellers did not reveal any preimpact mechanical anomalies that would have prevented normal operation.

#### ADDITIONAL INFORMATION

The wreckage was released to the owner's representative on March 14, 2007.

#### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	73, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last FAA Medical Exam:</b>	12/01/2005
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	08/01/2006
<b>Flight Time:</b>	5000 hours (Total, all aircraft), 229 hours (Total, this make and model), 15 hours (Last 90 days, all aircraft)		

#### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N181Y
<b>Model/Series:</b>	BE95 A-55	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	TC-488
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	08/01/2006, Annual	<b>Certified Max Gross Wt.:</b>	5100 lbs
<b>Time Since Last Inspection:</b>	0.8 Hours	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	6062 Hours as of last inspection	<b>Engine Manufacturer:</b>	Teledyne Continental
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-520-ACE
<b>Registered Owner:</b>	Harold E. Rafuse	<b>Rated Power:</b>	300 hp
<b>Operator:</b>	Harry A. Goodall	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PWG	Distance from Accident Site:	
Observation Time:	0755	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 4000 ft agl	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	140°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.97 inches Hg	Temperature/Dew Point:	26 °C / 21 °C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	McGregor, TX (PWG)	Type of Flight Plan Filed:	IFR
Destination:	Muscles Shores, AL (MSL)	Type of Clearance:	
Departure Time:	0755 CDT	Type of Airspace:	

## Airport Information

Airport:	McGregor Executive Airport (PWG)	Runway Surface Type:	Asphalt
Airport Elevation:	592 ft	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	5501 ft / 75 ft	VFR Approach/Landing:	None

## 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:	31.484722, -97.316389

## Administrative Information

Investigator In Charge (IIC):	Frank McGill	Report Date:	05/29/2007
Additional Participating Persons:	John Cox; FAA AFW FSDO; Fort Worth, TX Tim D Rainey; Raytheon Aircraft Company; Wichita, KS Josh Cawthra; Teledyne Continental Motors, Inc.; Mobile, AL		
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 <a href="mailto:pubinquiry@ntsb.gov">pubinquiry@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).