Aviation Investigation Final Report

Location:	North Garden, Virginia	**Accident Number:**	NYC06FA145
Date & Time:	June 14, 2006, 11:14 Local	**Registration:**	N202EN
Aircraft:	Raytheon Aircraft Company B36TC	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation		

Analysis

While operating on an instrument flight rules flight plan and approaching a non-towered airport in instrument meteorological conditions, about 3,100 feet above the ground, the pilot advised the controller that he was directly over the airport and wanted to spiral down. The controller cleared the pilot for a visual approach. Due to terrain conditions, landing was normally uphill, on runway 33, with a left traffic pattern. A witness, who was inside an office just to the north of the runway, heard the airplane go overhead, but did not see it. The wreckage was located southeast of the airport, about 20 degrees to the right of the final approach course and 4/10 of a mile from the runway threshold. Ground scars and wreckage evidence were consistent with airplane being in a spin at the time of impact. There were no mechanical anomalies noted with the airplane, and no noted medical issues with the pilot. The ceiling was unknown; however, the witness noted low clouds in the vicinity of the airport. The visibility was also unknown; however, when the witness left his office, he could see smoke from the crash site.

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 while turning onto the final approach, which resulted in an inadvertent stall/spin and subsequent impact with terrain.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Findings
1. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
2. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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

Findings
3. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On June 14, 2006, at 1114 eastern daylight time, a Raytheon Aircraft Company B36TC, N202EN, was destroyed when it impacted terrain near Bundoran Airport (VA18), North Garden, Virginia. The certificated commercial pilot and the passenger were fatally injured. Meteorological conditions at the accident site were undetermined. The airplane was operating on an instrument flight rules flight plan between Boire Field (ASH), Nashua, New Hampshire, and North Garden. The business flight was conducted under 14 CFR Part 91.

The pilot and passenger were principals in a "preservation development" company, and according to the site manager, Bundoran Airport was part of a 2,300-acre parcel that was recently acquired. The purpose of the trip was to work on conservation easements.

According to radio transmission transcripts, and copies of the radio transmission tapes provided by the Federal Aviation Administration (FAA):

At 0937, the pilot contacted the Leesburg En-route Flight Advisory Service, advised the specialist that he was at 6,000 feet, "ten southwest of Martinsburg," and provided a PIREP (pilot report). The specialist subsequently provided the pilot with current weather for "Charlottesville," which included an AIRMET for mountain obscuration, IFR conditions with widespread light rain showers, winds from 160 degrees true at 3 knots, 3/4 mile visibility in light rain and mist, and a 300-foot overcast. The pilot acknowledged the report, and requested confirmation of the 300-foot overcast, which the specialist provided, along with a reiteration of the 3/4-mile visibility.

At 1055, the pilot contacted Potomac Terminal Radar Approach Control (CHOWE position), "at six thousand [feet.]" The pilot also advised the controller that his destination was Bundoran, and the controller responded, "advise...airport in sight for the visual approach or do you think you'll need another approach?" The pilot answered, "we'll report it in sight," and was later cleared to proceed direct to the airport.

At 1100, the controller advised the pilot to maintain 5,100 feet, which the pilot acknowledged.

At 1107, the controller cleared the pilot to descend to 4,000 feet, which the pilot acknowledged.

At 1108:14, the controller advised the pilot that the airport was "twelve o'clock and about two miles," and the pilot responded, "ah, roger, it's a little too cloudy at the moment,...(unintelligible) up to the north...(unintelligible) far south."

At 1108:26, the controller began to brief a relief controller. The briefing ended with, "two zero two echo november is looking for the airport which is right in front of him."

At 1108:54, the controller advised the pilot that the airport was 1/2 mile ahead, and the pilot responded, "ah, roger, can you get me any lower, or is this it?" The controller responded, "that's as low as I can give you," which the pilot acknowledged.

At 1109:08, the controller stated to the relief controller that "he's probably gonna end up going into Charlottesville," and briefed the relief controller on another airplane planning an ILS approach.

At 1109:13, the relief controller stated, "got it."

At 1109:21, the relief controller stated, "two echo november, turn left heading zero three zero and I can get you a little lower when we get you northeast." The pilot acknowledged, then, at 1109:36, stated, "actually...the field is directly under me if I could, ah, spiral down." The controller answered, "two echo november, cleared for the visual approach," and the pilot responded, "thank you sir."

At 1110:46, the relief controller advised, "bonanza two echo november, looks like you've got it now, ah, change to advisory frequency approved, report canceling i-f-r," and the pilot answered, "ah, roger two echo november, I'm not going to give up yet."

There were no further transmissions from the airplane.

The site manager reported that, on the morning of the accident, he assumed that the pilot would not attempt to land at the airport due to low clouds. He called the pilot and left a message that he'd pick him up at "Charlottesville" or arrange car rental, but wasn't sure if the pilot ever received it.

Just before the accident, while working in his office north of the runway, the site manager heard, but did not see the airplane pass overhead. He then got into his car and drove to the airport's hangar area to pick up the pilot and passenger. When he saw no one had arrived, he returned to the office. He did not hear the sound of an impact.

About 5 minutes later, as the site manager was leaving his office to run an errand, he saw smoke in the direction of a rental cottage on the property. He drove over to check on it, and found a fire in a field beyond the cottage. Although he didn't realize it initially, he eventually realized that the fire was the result of the accident.

The accident occurred during daylight hours, in the vicinity of 37 degrees, 57.74 minutes north latitude, 78 degrees, 40.23 minutes west longitude.

PERSONNEL INFORMATION

The pilot's logbook was not recovered. According to FAA records, the pilot held a commercial pilot certificate with airplane single engine land, airplane multiengine land, and instrument airplane ratings. His latest FAA second class medical certificate was issued on February 7, 2006. On that same date, the pilot reported to his insurance company that he had 3,721 total hours of flight time, with 294 hours in make and model, and 278 hours of flight time during the previous year.

According to the Bundoran site manager, the pilot had landed at the airport an estimated 25 to 30 times before, and had always landed uphill and departed downhill, except once. Typically, he would approach the airport from the north, pass over it toward the south, and make a left turn to land uphill on runway 33. The site manager never knew the pilot to land there during rainy or nighttime conditions. Instead, he would land at Charlottesville-Albemarle Airport (CHO), Charlottesville, Virginia, and be picked up by the manager or rent a car. The site manager, who had flown with the pilot twice, also noted that the pilot had to make (what the manager felt) was a "sharp" left turn to avoid terrain before landing on the runway.

AIRCRAFT INFORMATION

The airplane was manufactured in 1996. Due to the condition of the wreckage, the airplane's operating hours could not be determined. A review of maintenance records revealed that the latest annual inspection was completed on January 12, 2006, at 1,430.1 airplane and engine operating hours. On March 12, 2006, an oil and filter change were performed at 1,486.7 hours.

METEOROLOGICAL INFORMATION

Weather, recorded at Charlottesville Albemarle Airport, 15 nautical miles to the northeast, at 1053, included calm winds, 2 statute miles visibility in mist, a broken cloud layer at 500 feet, and a broken cloud layer at 800 feet. Weather, recorded at 1142, included winds from 360 degrees true at 3 knots, 2 statute miles visibility in mist, light rain, a broken cloud layer at 700 feet, and an overcast cloud layer at 1,300 feet. Airport elevation was 639 feet.

There were no weather recording facilities at Bundoran Airport. Ceiling and visibility were unknown.

AIRPORT INFORMATION

Bundoran Airport had a single turf runway, oriented 150/330 degrees, with a left traffic pattern. There was no control tower and no instrument approach. The runway was 3,000 feet long and 100 feet wide. There was higher terrain, about 2,000 feet laterally from the runway, that encircled the airport except for the eastern and southeastern sides. Normal arrival was uphill on runway 33, and takeoff was downhill on runway 15. Airport elevation was 840 feet.

WRECKAGE AND IMPACT INFORMATION

An examination of the accident site revealed no wreckage path, and no evidence of the airplane hitting an obstacle before the accident. The runway threshold was about 4/10 of a mile, 310 degrees magnetic.

There was a hole in the ground which contained the three propeller blades and part of the propeller hub. There were also straight-line indentations in the ground, emanating from the hole in opposite directions, consistent in length to the airplane's wings. The position of the pitot tube next to one of the indentations was consistent with the airplane having hit the ground heading about 180 degrees magnetic.

The main wreckage came to rest about 20 feet southeast of the hole. The airplane was mostly consumed by fire. Both wings had leading edge crushing approximately straight back. The flap actuator rod extension corresponded to 30-degrees flaps, and the landing gear actuator rod positions correlated to the landing gear being down. The left aileron trim actuator rod position corresponded to 0-degrees aileron trim, and the elevator trim unit was destroyed.

Recoverable cockpit gauges included: heading: 190 degrees; fuel flow: 19.2 gal/hour; manifold pressure: 25 in Hg; oil pressure: 48 psi; oil temperature: 45 degrees C; vacuum gauge 4.75 in Hg.

An examination of the engine did not reveal any anomalies that would have precluded normal operation. Crankshaft and valve train continuity, and compression to all cylinders were confirmed. Spark plug electrodes were gray in color. The exhaust piping exhibited malleable bending. The fuel manifold had residual fuel, and the fuel pump coupling was intact. Both magnetos had impact damage. When rotated by hand, the right magneto produced spark at all terminals while the left magneto did not produce any spark. No metal particles were observed in the oil filter. The drive coupling to the vacuum pump was melted, and the interior vanes were not damaged. Borescope examination of the number 2 and number 4 cylinders revealed no anomalies.

The three propeller blades had leading edge burnishing and some chordwise scoring. All of the blades were broken out of the hub, and all blades exhibited s-bending.

MEDICAL AND TOXICOLOGICAL INFORMATION

An autopsy was conducted on the pilot at the Virginia Department of Health, Office of the Chief Medical Examiner, Richmond, Virginia, and toxicological testing was performed by the FAA Forensic Toxicology Research Team, Oklahoma City, Oklahoma. There was no evidence of preaccident anomalies.

ADDITIONAL INFORMATION

On July 26, 2007, the wreckage was released to a representative of the pilot's insurance company.

Pilot Information

Certificate:	Commercial	**Age:**	55,Male
Airplane Rating(s):	Single-engine land; Multi-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 2	**Last FAA Medical Exam:**	February 1, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 1, 2004
Flight Time:	3721 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Raytheon Aircraft Company	**Registration:**	N202EN
Model/Series:	B36TC	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	EA-594
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	January 1, 2006 Annual	**Certified Max Gross Wt.:**	3866 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1430 Hrs as of last inspection	**Engine Manufacturer:**	Teledyne Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520
Registered Owner:	On file	**Rated Power:**	300 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:		**Condition of Light:**	Day
Observation Facility, Elevation:	CHO,639 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	10:53 Local	**Direction from Accident Site:**	50°
Lowest Cloud Condition:		**Visibility**	2 miles
Lowest Ceiling:	Broken / 500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	18°C / 17°C
Precipitation and Obscuration:	Moderate - None - Mist		
Departure Point:	Nashua, NH (ASH)	**Type of Flight Plan Filed:**	IFR
Destination:	North Garden, VA (VA18)	**Type of Clearance:**	IFR
Departure Time:	08:13 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Bundoran VA18	**Runway Surface Type:**	Grass/turf
Airport Elevation:	840 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	33	**IFR Approach:**	Visual
Runway Length/Width:	3000 ft / 100 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	2 Fatal	**Latitude, Longitude:**	37.962223,-78.670555

Administrative Information

Investigator In Charge (IIC):	Cox, Paul
Additional Participating Persons:	John Keymont; FAA/FSDO; Richmond, VA John Kent; Teledyne Continental Motors; Mobile, AL Russell Schrock; Raytheon Aircraft Company; Wichita, KS
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Last Revision Date:	
Investigation Class:	Class
Note:	
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