# Aviation Investigation Final Report

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| **Location:** | Wht Sulfur Sprg, New York | **Accident Number:** | IAD05FA121 |
| **Date & Time:** | August 12, 2005, 14:13 Local | **Registration:** | N45679 |
| **Aircraft:** | Cessna 150M | **Aircraft Damage:** | Substantial |
| **Defining Event:** | | **Injuries:** | 1 Fatal |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The student pilot departed his home airport on a personal flight with an unknown quantity of fuel. He landed and shut down the engine at another airport, did not purchase any fuel, then departed for the return flight. Hours later, witnesses observed the airplane circling about 8 miles from his home airport. The airplane then maneuvered for landing in a park. When asked about the sound of the airplane's engine, one witness stated, "The engine was running fine, it was running steady." He estimated that the power setting was about "mid-range." A second witness was one-quarter mile to the west of the crash site when he noticed the airplane circle overhead. The airplane then descended, and passed over his head "at treetop level" as it flew toward the park in a wings-level attitude. When asked about the sound of the engine, the witness stated, "He was coming in slowly, and the engine was running smoothly, but we knew he was coming in for an emergency landing." On short final approach, the airplane struck a wire, descended sharply, struck the ground, and nosed over. Examination of the wreckage revealed no mechanical anomalies. Fuel drained from the tanks totaled 4.7 gallons, 3.5 gallons of which were not usable. Examination of the pilot's records revealed that he had been a student pilot for 11 years, with several multi-year breaks in his training, and that he had accumulated 190 total hours of flight experience.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate visual lookout during a precautionary landing, which resulted in collision with a wire and terrain. Factors in the accident were the pilot's inadequate in-flight planning which resulted in his becoming lost/disoriented, and a low fuel state.

## Findings

Occurrence #1: MISCELLANEOUS/OTHER
Phase of Operation: CRUISE

Findings
1. (F) FLUID,FUEL - LOW LEVEL
2. (F) BECAME LOST/DISORIENTED - INADVERTENT - PILOT IN COMMAND
3. (F) PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
4. PRECAUTIONARY LANDING - PERFORMED - PILOT IN COMMAND
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Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: LANDING

Findings
5. OBJECT - WIRE,TRANSMISSION
6. (C) VISUAL LOOKOUT - INADEQUATE - PILOT IN COMMAND
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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. TERRAIN CONDITION - GROUND

## Factual Information

HISTORY OF FLIGHT

On August 12, 2005, at 1413 eastern daylight time, a Cessna 150M, N45679, was substantially damaged when it impacted wires and terrain at Firemen's Park, White Sulphur Springs, New York. The certificated student pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan was filed for the flight that originated at Cherry Ridge Airport (N30), Honesdale, Pennsylvania, about 1200. The personal flight was destined for Sullivan County International Airport (MSV), Monticello, New York, and was conducted under 14 CFR Part 91.

A witness was working in front of his automotive repair shop, when he watched the airplane approach at low altitude in a southeasterly direction. The airplane passed over the adjacent firehouse, and his shop, approximately 50 feet above the rooftops. The airplane continued toward Firemen's Park, and disappeared from view. Seconds later, the witness heard a loud "pop," followed shortly by the "fire whistle."

When asked about the sound of the airplane's engine, the witness stated, "The engine was running fine, it was running steady." He estimated that the power setting was about "mid-range."

A second witness was one-quarter mile to the west of the crash site when he noticed the airplane circle overhead. The airplane then descended, and passed over his head "at treetop level" as it flew toward Firemen's Park in a wings-level attitude. When asked about the sound of the engine, the witness stated, "He was coming in slowly, and the engine was running smoothly, but we knew he was coming in for an emergency landing."

A sheriff's deputy witnessed the accident while seated in Firemen's Park. He said, "The airplane just kept flying lower" as it approached the park. As the airplane descended close to the ground, it "veered left," struck wires and terrain, and came to rest inverted. The deputy did not recall hearing the engine running, and said there was no odor of fuel, or evidence of fuel spillage at the scene.

Several other witnesses gave similar accounts by telephone and in person. Each described the airplane maneuvering slowly at low altitude toward the park with the engine running smoothly.

The accident occurred during daylight hours, at 41 degrees, 47 minutes north, and 74 degrees, 49 minutes west.

PERSONNEL INFORMATION

The student pilot was issued a Federal Aviation Administration third class medical certificate on December 1, 2003.

A review of the pilot's logbook and the airplane's records revealed that the pilot had accumulated 190 total hours of flight experience. His logbook entries began in August 1994, and stopped in November 1994. They resumed in November 2001, and stopped in January 2002. Logbook entries resumed again in August 2003.

The pilot logged 8.3 total hours in the 90 days prior to the accident, and 5 hours in the 30 days prior. Between September 27, 2004, and June 19, 2005, the pilot did not log any flight time. A solo endorsement in his logbook was dated June 20, 2005.

## AIRCRAFT INFORMATION

The airplane was manufactured in 1976. The tachometer reading at the accident site was 6,759.6 aircraft hours. On August 7, 2005, a co-owner serviced the airplane with 5 gallons of aviation gasoline at 6,756.6 aircraft hours.

In a telephone interview, the co-owner stated that the 5-gallon fuel service brought the total on board to 20 gallons. The owners agreed, due to summer temperatures and density altitude considerations, to limit the total fuel on board to 20 gallons. When asked how the 20-gallon level was determined, he replied that a fuel measuring stick on board the airplane was used.

The airplane was based at Sullivan County International Airport. According to the fixed base operator at Cherry Ridge Airport, the pilot arrived the morning of the accident, and dropped off his airplane logbooks for an inspection that was scheduled for a later date. The airplane was not serviced with fuel prior to the pilot's departure on the return leg of the flight.

According to the Cessna 150M Pilot's Operating Handbook, the airplane had a 26-gallon fuel capacity, 22.5 gallons of which were usable. Interpolation of the Cruise Performance chart revealed that at 20 degrees Celsius above standard temperature, between 2,000 and 4,000 feet, at 75 percent power, the engine would consume 5.4 gallons of fuel per hour.

## METEOROLOGICAL INFORMATION

At 1415, the weather recorded at the Sullivan County International Airport included clear skies and 7 miles visibility, with winds from 210 degrees at 6 knots. The temperature was 87 degrees Fahrenheit, and the dewpoint was 62 degrees Fahrenheit. The altimeter setting was 30.03 inches of mercury.

## WRECKAGE AND IMPACT INFORMATION

The airplane was examined at the site on August 13, 2005, and all major components were

accounted for at the scene. The wreckage path was oriented 050 degrees, and was about 230 feet long. The initial impact point was in powerlines, about 40 feet above the ground. The powerlines ran along a public road that was oriented generally north/south.

The initial ground scar was centered along the wreckage path, and 110 feet beyond the wires. The airplane came to rest inverted, facing opposite the direction of travel, about 130 feet beyond the wires. The nose wheel came to rest centered on the wreckage path, 230 feet beyond the wires.

The engine was separated from its mounts, and came to rest next to the airplane's empennage. It was still attached to the firewall by the throttle cable. The propeller was attached to the flange, and the blades were bent aft about mid-span. The face of each blade displayed chordwise scratching.

The cockpit structure aft of the engine firewall was completely exposed. It was crushed aft, and the instrument panel was destroyed by impact. The cockpit floor was crushed aft behind the wing struts.

Both wings were still attached, and largely intact. The leading edges of both wings were damaged by impact, and flattened uniformly along the span. The flaps were retracted.

The cockpit and cabin area was mostly intact, and the empennage was crushed and wrinkled aft of the main landing gear along its entire length to the tail section. The pilot's seat was separated from its rails, but the rails remained intact. The copilot's seat was intact, attached to its rails, and free to move on the rails.

The tail section was mostly intact. The horizontal stabilizer and elevator were attached. The right elevator was wrinkled. The rudder was attached to the vertical fin at the lower attach point. The upper attach bracket was separated by impact. The vertical stabilizer was attached, but the top 18 inches were crushed and bent over 90 degrees to the airplane's right.

Control cable continuity was established from the cockpit to all flight control surfaces. The elevator bellcrank was broken away from the airframe by impact. The elevator trim actuator chain was intact, but off of its sprocket. The flap actuator was found in the retracted position.

The wings were removed, and an equal amount of aviation gasoline was drained from each tank. The drained fuel totaled 4.7 gallons and was absent of water and sediment. Examination of the fuel system revealed that the fuel lines between the wings and the belly sump drain were empty, and free of obstruction. A trace amount of fuel was drained from the lines between the tanks and the fuel shutoff valve.

The main landing gear was intact, and the left main landing gear exhibited spiraled striations along the leading edge of the strut.

The airspeed indicator was located in the dash area, but free of its mount. Examination revealed that the indicator needle was fixed at 68 knots.

## MEDICAL AND PATHOLOGICAL INFORMATION

The Coroner's Physician of Sullivan County, New York, performed the autopsy on the pilot.

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma performed toxicological testing on the pilot.

## TESTS AND RESEARCH

On August 14, 2005, the engine was examined at the Sullivan County International Airport.

The engine crankshaft was rotated by hand, and continuity was established through the powertrain and valvetrain, to the accessory section. Compression was confirmed on all cylinders using the thumb method. A borescope examination of the engine cylinders revealed no anomalies.

The top four spark plugs were removed, and their electrodes were intact and light gray in color. Ignition timing was confirmed with an engine timing light. The magnetos were intact, and secure in their mounts. When the engine was rotated, the magnetos produced spark at all terminal leads, except for the number 4 and number 2 wires, which were damaged by impact. Spark was confirmed at the respective magneto tower for each of the damaged wires.

The carburetor was separated from the engine, damaged by impact, but remained intact. Disassembly of the carburetor revealed that the float was intact, and the accelerator pump was operational.

The oil filter was cut open and the element was examined. The oil filter element appeared absent of debris.

## ADDITIONAL INFORMATION

The airplane wreckage was released on August 14, 2005, to a representative of Woodstock Aircraft Services.

## Pilot Information

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| **Certificate:** | Student | **Age:** | 78,Male |
| **Airplane Rating(s):** | None | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | |
| **Instrument Rating(s):** | None | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 3 With waivers/limitations | **Last FAA Medical Exam:** | January 1, 2003 |
| **Occupational Pilot:** | UNK | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 190 hours (Total, all aircraft), 8 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Cessna | **Registration:** | N45679 |
| **Model/Series:** | 150M | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Utility | **Serial Number:** | 15077018 |
| **Landing Gear Type:** | Tricycle | **Seats:** | 2 |
| **Date/Type of Last Inspection:** | August 1, 2004 Annual | **Certified Max Gross Wt.:** | 1600 lbs |
| **Time Since Last Inspection:** | 72 Hrs | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 6759 Hrs at time of accident | **Engine Manufacturer:** | Continental |
| **ELT:** | Installed, activated, did not aid in locating accident | **Engine Model/Series:** | O-200-A |
| **Registered Owner:** | John F. Raftery | **Rated Power:** | 100 Horsepower |
| **Operator:** | | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | MSV,1403 ft msl | **Distance from Accident Site:** | 8 Nautical Miles |
| **Observation Time:** | 14:15 Local | **Direction from Accident Site:** | 330° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 7 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 6 knots / 0 knots | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 210° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30.03 inches Hg | **Temperature/Dew Point:** | 31°C / 17°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | HONESDALE, PA (N30 ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | MONTICELLO, NY (MSV ) | **Type of Clearance:** | None |
| **Departure Time:** | 12:00 Local | **Type of Airspace:** | |

## Airport Information

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| **Airport:** | SULLIVAN COUNTY INTL MSV | **Runway Surface Type:** | |
| **Airport Elevation:** | 1403 ft msl | **Runway Surface Condition:** | |
| **Runway Used:** | | **IFR Approach:** | None |
| **Runway Length/Width:** | | **VFR Approach/Landing:** | Precautionary landing |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 Fatal | **Latitude, Longitude:** | 41.802223,-74.834167 |

## Administrative Information

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| **Investigator In Charge (IIC):** | Rayner, Brian |
| **Additional Participating Persons:** | Robert Willett; FAA FSDO; Albany, NY<br>Randy Manquist; Cessna; Wichita, KS<br>John Kent; Teledyne Continental; Mobile, AL |
| **Original Publish Date:** | November 29, 2006 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | The NTSB traveled to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=62203 |