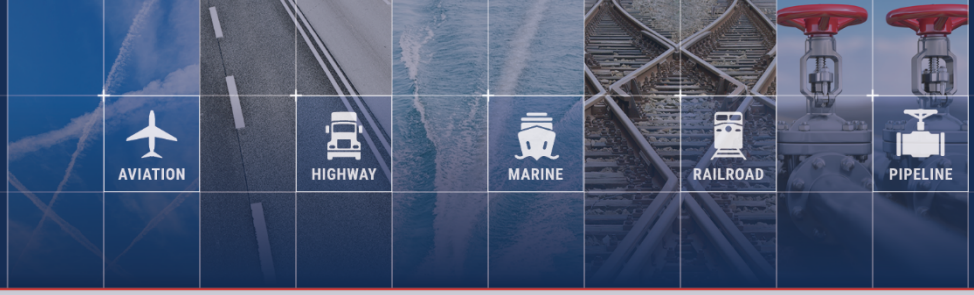

Aviation Investigation Final Report

Location:	Brownsville, Pennsylvania	**Accident Number:**	NYC07FA003
Date & Time:	October 9, 2006, 15:17 Local	**Registration:**	N3447N
Aircraft:	Mooney M20F	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor and private pilot/owner departed from their home airport, for the purpose of conducting a biennial flight review. Radar data indicated the airplane climbed to an altitude of 3,400 feet mean sea level (msl), and began maneuvering between the altitudes of 3,500 feet to 3,800 feet, at groundspeeds ranging between 109-131 knots. The airplane continued to maneuver, and the speed gradually decreased from 101 knots to 65 knots, as the altitude decreased from 3,700 to 2,800 feet. At some point during the descent, the airplane entered a spin which continued until it impacted the ground. The private pilot had approximately 1,207 hours of total flight experience at the time of the accident. All of his flight time during the previous 6 years was accumulated in the accident airplane. The flight instructor reported over 10,800 hours of total flight experience. Examination of the airplane and engine revealed no preimpact mechanical anomalies. The private pilot experienced a heart attack 3 years prior to the accident, and the FAA issued him Special Issuance Medical Certificates on three occasions preceding the accident. The pilot had developed an intermittent abnormal heart rhythm (atrial fibrillation) approximately 10 months prior to the accident, and began taking a blood thinner (warfarin) to reduce his risk for stroke. The pilot's FAA medical records did not note whether the pilot had any symptoms with the atrial fibrillation or how frequently he experienced it, and information submitted to the FAA by the pilot indicated that he was on an inadequate dose of warfarin to effectively reduce his stroke risk; nonetheless, the FAA most recently authorized Special Issuance of a medical certificate two months prior to the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of aircraft control, for unknown reasons, while maneuvering.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED
2. PHYSIOLOGICAL CONDITION - PILOT IN COMMAND
3. INADEQUATE CERTIFICATION/APPROVAL,AIRMAN

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

Findings
4. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On October 9, 2006, at 1517 eastern daylight time, a Mooney M20F, N3447N, was substantially damaged when it impacted terrain while maneuvering near Brownsville, Pennsylvania. The certificated flight instructor and certificated private pilot/owner were fatally injured. Visual meteorological conditions prevailed and no flight plan was filed for the flight which originated at the Rostraver Airport (FWQ), Monongahela, Pennsylvania. The local instructional flight was conducted under 14 Code of Federal Regulations Part 91.

According to a Federal Aviation Administration (FAA) inspector, the airplane departed from FWQ, about 1500, for a local training flight. The purpose of the training flight was for the flight instructor to conduct a biennial flight review with the pilot/owner.

Examination of radar data provided by the FAA revealed a target correlated to be the accident airplane departed from runway 26, and flew south, while climbing to an altitude of 3,400 feet mean sea level (msl). Approximately 12 minutes after takeoff, the airplane began maneuvering between the altitudes of 3,500 to 3,800 feet, at groundspeeds ranging between 109 to 131 knots, and varying headings. Approximately 2 minutes later, the airplane continued flying south, at an altitude of 3,700 feet. During the following 1 minute and 50 seconds, the airplane's speed gradually decreased from 101 knots to 78 knots, and the altitude decreased from 3,700 feet to 3,400 feet. The next, and final, radar return (12 seconds later, at 1516) indicated the airplane had descended to an altitude of 2,800 feet, at a groundspeed of 65 knots, tracking in a direction of 300 degrees. The final radar return was less than a mile from the accident site.

Several witnesses observed the airplane, and all reported that the airplane was spinning prior to impacting the ground. One witness reported that the airplane sounded like it continued to "shut down and start up again" while it was spinning.

PERSONNEL INFORMATION

The 72-year-old, pilot/owner held a private pilot certificate with a rating for airplane single-engine land. His most recent FAA third-class medical was issued on August 24, 2006.

The pilot's logbook was located in the airplane. A review of the logbook revealed entries from October 2000 to September 27, 2006, all of which were in the accident airplane. As of the last entry, the pilot logged 1,207 hours of total flight experience.

The 44-year-old, flight instructor held an airline transport pilot certificate with a rating for airplane multi-engine land, and a commercial pilot certificate with a rating for airplane single-

engine land. She also held a flight instructor certificate with ratings for airplane multi-engine land, airplane single-engine land, and instrument airplane. Her most recent FAA second-class medical certificate was issued on April 1, 2006. At that time, she reported 10,800 hours of total flight experience.

The flight instructor's logbook was not located, and her total flight experience in the make and model of the accident airplane could not be substantiated.

AIRCRAFT INFORMATION

Examination of the airframe and engine logbooks revealed that the most recent annual inspection was completed on October 24, 2005, with no anomalies noted.

METEOROLOGICAL INFORMATION

Weather reported at AGC, approximately 9 miles to the northwest of the accident site, at 1453, included calm winds, 10 miles visibility, few clouds at 6,000 feet, temperature 24 degrees Celsius (C), dew point 14 degrees C, and an altimeter setting of 30.16 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The airplane impacted rising terrain, in a heavily wooded area, at an elevation of 1,100 feet. The airplane came to rest, upright, oriented on a heading of 170 degrees magnetic, on terrain which inclined at approximately 35 degrees. All components of the airplane were located in a compact area, there was no wreckage path, and trees in the surrounding vicinity were not disturbed.

Both wings remained attached to the fuselage at their wing roots; the left wing was angled slightly aft and the right wing was angled slightly forward.

The left aileron remained attached to the wing at its outboard attachment point. The left flap was separated from the wing but located immediately adjacent to it.

The outboard section of the right wing was separated, and the flap remained attached to the separated section of wing. The right aileron remained attached to the wing at its inboard attachment point.

The vertical stabilizer remained attached to the fuselage, but was twisted and angled approximately 60 degrees to the left.

Flight control continuity was confirmed from the flight controls to the cockpit area.

The forward cockpit area and instrument panel displayed severe crushing. Examination of the throttle column revealed the propeller control was in the full forward position, the mixture

control was in the full forward position, and the throttle control was in the full aft position and bent at a 90-degree angle.

The engine remained attached to the airplane, and one propeller blade remained attached to the engine. The other propeller blade was located under the engine. Both blades displayed chordwise scratching and leading edge gouges. The attached propeller blade displayed S-bending, and the separated blade displayed forward bending on the outboard portion.

The engine was removed from the airplane and the crankshaft was rotated manually at the propeller hub. Thumb compression and suction were obtained on cylinders 1, 3, and 4; and cylinder number 2 exhibited severe impact damage. Valve train and crankshaft continuity were confirmed to the rear accessory drive section.

The magnetos were rotated by hand, and produced spark at all terminal leads. Examination of the top and bottom spark plugs revealed light gray electrodes. The number 2 and 4 bottom spark plugs were impact damaged.

Examination of the fuel pump revealed the inlet port displayed impact damage; however, fuel was dripping from the port. Fuel was also observed in the fuel distributor.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on both pilots on October 10, 2006, by the Fayette County Coroner Office, Uniontown, Pennsylvania. The autopsy report of the private pilot revealed existence of previous coronary bypass surgery; and that no intact coronary arteries could be identified.

Toxicological testing was conducted, on both pilots, by the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma. According to the toxicological report, 34 (mg/dL, mg/hg) ETHANOL was detected in the private pilot's muscle, and ATENOLOL was present in the pilot's liver and detected in his kidney. The ETHANOL detected was from sources other than ingestion.

The flight instructor's toxicological test was negative for drugs and alcohol.

Review of the private pilot's personal medical records by the National Transportation Safety Board's Medical Officer revealed the pilot had a heart attack in October 2003, with subsequent surgery to bypass severe disease in five coronary arteries. An echocardiogram in May 2004 showed a dilated left atrium and pulmonary hypertension, among other findings. There were no echocardiograms in the FAA medical records. The FAA issued the pilot an Authorization for Special Issuance of a Medical Certificate in September 2004 and June 2005.

The pilot was started on a blood thinner (warfarin) after being diagnosed with atrial fibrillation, in January 2006.

In May 2006, the FAA requested that the pilot supply additional information regarding his atrial fibrillation, specifically requesting, "...international normalized ration (INR) values, accomplished and recorded at least monthly for the preceding twelve months. Eighty percent of the values must be within therapeutic range (2.0-3.0)." The pilot submitted 9 INR values (since he had not been on the blood thinner for a full 12 months at the time), 3 of those values were within the specified range. A 24-hour Holter monitor performed on June 28, 2006 was reported as essentially normal with no episodes of atrial fibrillation.

The FAA issued the pilot another Authorization for Special Issuance of a Medical Certificate on August 9, 2006, and his most recent Application for Third-Class Medical Certificate was dated August 24, 2006. That application noted the pilot's history of bypass surgery and use of a blood thinner, but did not further address the pilot's history of atrial fibrillation.

TESTS AND RESEARCH

A handheld Garmin GPSmap 296 unit, which was recovered from the wreckage, was sent to the Safety Board's Vehicle Recorder Laboratory for data extraction. The unit contained multiple tracklog entries from August 13, 2006 to October 1, 2006. No information was obtained for the accident flight.

ADDITIONAL INFORMATION

It was noted that both pilots had their seatbelts fastened; however, no shoulder harnesses were installed.

A weight and balance computation was performed, with approximate weights of both pilots. The computed weight for the airplane was approximately 2,550 pounds and the maximum allowable weight was 2,740 pounds. Additionally, the airplane was within the center-of-gravity envelope.

According to the second owner of the airplane, the airplane was last fueled on October 1, 2006 to full tanks, and did not fly prior to the accident flight.

Pilot Information

Certificate:	Private	**Age:**	72,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	August 1, 2006
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	1207 hours (Total, all aircraft), 1095 hours (Pilot In Command, all aircraft), 5 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Flight instructor Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	44,Female
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	April 1, 2006
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	10800 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N3447N
Model/Series:	M20F	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	680056
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 1, 2005 Annual	**Certified Max Gross Wt.:**	2740 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	5748 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	IO-360-A1A
Registered Owner:	Charles Schreiber	**Rated Power:**	
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	AGC	**Distance from Accident Site:**	9 Nautical Miles
Observation Time:	14:53 Local	**Direction from Accident Site:**	290°
Lowest Cloud Condition:	Few / 6000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	24°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Monongahela, PA (FWQ)	**Type of Flight Plan Filed:**	None
Destination:	(FWQ)	**Type of Clearance:**	None
Departure Time:	15:00 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	40.039165,-79.860557

Administrative Information

Investigator In Charge (IIC):	Andrews, Jill
Additional Participating Persons:	Robert Lowery; FAA/FSDO; Allegheny, PA Edward Rogalski; Lycoming Engines; Williamsport, PA
Original Publish Date:	March 31, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=64772