Aviation Investigation Final Report

Location:	Copake, New York	**Accident Number:**	ERA11FA055
Date & Time:	November 10, 2010, 19:40 Local	**Registration:**	N6878V
Aircraft:	Mooney M20F	**Aircraft Damage:**	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was approaching the destination airport in night visual meteorological conditions, on an instrument flight rules (IFR) flight plan. The destination airport was at an elevation of 739 feet mean sea level (msl), located in the vicinity of mountainous terrain. About 10 miles from the destination airport, the pilot elected to cancel his IFR clearance. At that time, the airplane was at 3,900 feet msl and began a descent consistent with a 45-degree entry to a left downwind leg of the destination airport traffic pattern, which was 1700 feet msl. About 2 minutes later, the airplane had descended to 2,400 feet and was approximately 1/4 mile from the 2,000-foot summit of a mountain. About 10 seconds later, the airplane had descended to 2,100 feet, about 1,000 feet horizontally from the summit. The airplane impacted trees near the summit and came to rest about 500 feet beyond the initial impact. The summit was approximately 5 miles southwest from the destination airport. Examination of the wreckage did not reveal any preimpact mechanical malfunctions. The end of civil twilight occurred about 2 hours prior to the accident. Moonset occurred about 1 hour after the accident and the phase of the moon was waxing crescent with only 22 percent of the moon's visible disc illuminated.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to monitor and maintain clearance from mountainous terrain during a visual descent to the destination airport at night, which resulted in controlled flight into terrain.

Findings

Personnel issues	Monitoring environment - Pilot
Environmental issues	Dark - Effect on operation

Factual Information

History of Flight

Enroute-descent	Controlled flight into terr/obj (CFIT) (Defining event)

HISTORY OF FLIGHT

On November 10, 2010, about 1940 eastern standard time, a Mooney M20F, N6878V, was substantially damaged when it collided with wooded terrain, near the summit of Mount Frey, Copake, New York. The certificated private pilot and passenger were killed. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Night visual meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed for the planned flight to Walter J Koladza Airport (GBR), Great Barrington, Massachusetts. The flight departed Lorain County Regional Airport (LPR), Elyria, Ohio, about 1550.

According to data from the Federal Aviation Administration (FAA), the flight was in radar and radio contact with Albany terminal radar approach control (TRACON) as the flight approached GBR. At 1921, the pilot advised the controller that he intended to make a visual approach to runway 29 at GBR, which was located 739 feet above mean sea level (msl). At 1927, the controller instructed the pilot to descend from 7,000 msl, to 4,000 feet msl, which the pilot acknowledged. At 1936, the pilot reported that he had GBR in sight and the controller cleared the flight for a visual approach to runway 29 at GBR. At 1937, the controller gave the pilot the option of canceling his IFR clearance on the current radio frequency or with flight service on the ground, and approved a frequency change to the GBR common traffic advisory frequency. The pilot elected to cancel his IFR clearance at that time with the Albany controller. The controller acknowledged the cancellation, instructed the pilot to change the transponder code, and reported no traffic between the accident airplane and GBR. The pilot acknowledged the last instruction and no further communications were received from the accident airplane.

Review of radar data revealed that at the time of the IFR flight plan cancellation, the airplane was at 3,900 feet and began a descent on a northeasterly track, consistent with a 45-degree entry to the left downwind leg of the GBR traffic pattern. At 1939:12, the airplane had descended to 2,900 feet and was approximately 1.5 miles from the summit of Mount Frey. The summit of Mount Frey was located about 5 miles southwest of GBR. At 1939:45, the airplane had descended to 2,400 feet and was approximately .25 mile from the summit of Mount Frey. At 1939:54, the airplane had descended to 2,100 feet and was approximately 1,000 feet from the summit of Mount Frey. The summit elevation at Mount Frey was approximately 2,000 feet msl and the GBR traffic pattern altitude was 1,700 feet msl.

PERSONNEL INFORMATION

The pilot, age 64, held a private pilot certificate, with ratings for airplane single-engine land and instrument airplane. His most recent FAA third-class medical certificate was issued on February 2, 2009. At that time, the pilot reported a total flight experience of 1,410 hours. The pilot's logbook was not recovered

AIRCRAFT INFORMATION

The four-seat, low-wing, retractable-gear airplane, serial number 22-1271, was manufactured in 1975. It was powered by a Lycoming IO-360, 200-horsepower engine and equipped with a three-bladed, constant-speed Hartzell propeller. Review of the airframe and engine logbook revealed that the most recent annual inspection was performed on June 22, 2010. At that time, the airplane had accumulated 3,534 total hours of operation. The engine had accumulated 2,243 total hours of operation.

METEOROLOGICAL INFORMATION

According to data from Lockheed Martin, the pilot telephoned flight service at 1524. He received a standard weather briefing and filed an IFR flight plan for the flight from LPR to GBR.

Pittsfield Municipal Airport (PSF), Pittsfield, Massachusetts, was located about 20 miles northeast of GBR. The recorded weather at PSF, at 1954, was: wind calm, visibility 10 miles, sky clear, temperature 1 degree Celsius, dew point minus 2 degrees Celsius, altimeter 30.20 inches of mercury.

According to the U.S. Naval Observatory, for the GBR area, sunset occurred at 1637, the end of civil twilight occurred at 1706, and moonset occurred at 2034. The phase of the moon was waxing crescent with 22 percent of the moon's visible disc illuminated.

WRECKAGE AND IMPACT INFORMATION

The airplane was located by a hunter on November 11, 2010, about 5 miles southwest of GBR, at an elevation of 1,861 feet msl. The main wreckage came to rest inverted, oriented on a southerly heading, near the summit of Mount Frey, with the empennage suspended in a tree. An approximate 500-foot long debris path, oriented on a northeasterly heading, was observed originating with tree strikes and terminated at the main wreckage. Pieces from the outboard left wing were located near the beginning of the debris path, along with freshly cut branches from the tops of 25-foot tall trees. No tree damage was observed in the vicinity of the main wreckage, and an approximately 5-foot-long, 3-foot-wide, 2-foot deep crater was present about 10 feet from the wreckage.

A postcrash fire consumed the cockpit and fuselage. The flaps and landing gear were retracted. The inboard sections of the left and right wings remained attached to the fuselage, and the flaps remained attached to their respective wings. The outboard section of left wing was found along the debris path, and its aileron remained attached. The outboard section of

the right wing was consumed by fire. The empennage sustained minor damage, and its vertical stabilizer, horizontal stabilizer, rudder, and elevator remained attached. The flight control system consisted of push-pull tubes, which were partially consumed by fire. Subsequently, flight control continuity could not be confirmed.

The engine and one propeller blade were partially buried in the ground. All three propeller blades remained attached to the engine. One blade exhibited s-bending, another blade was bent forward, and the third blade exhibited leading edge gouging and tip curling. The engine had sustained thermal damage and the propeller could not be rotated.

The engine was examined further following recovery to a hangar. The No. 2 cylinder was impact damaged, the intake pushrod was missing, and the intake rocker arm was fractured. The No. 1 cylinder also exhibited impact damage. Due to impact damage, the bottom sparkplugs were removed on the No. 2 and No. 4 cylinders. The top sparkplugs were removed from the No. 1 and No. 3 cylinders. Examination of the sparkplugs revealed the electrodes were intact, and light gray in color. Some debris was noted in the No. 2 and No. 4 sparkplugs, consistent with impact damage. The magnetos sustained thermal damage and could not be tested. The valve covers were also removed. The crankshaft could only be rotated about 90 degrees via the propeller; however, a borsecope examination of the cylinders did not reveal any catastrophic failures and oil was noted throughout the cylinders.

Examination of the elevator trim jackscrew revealed 7 threads, which equated to an approximate takeoff trim setting.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on November 14, 2010, by the Albany County Medical Examiner's Office, Albany, New York.

Toxicological testing was performed on the pilot by the FAA Bioaeronautical Science Research Laboratory, Oklahoma City, Oklahoma.

Pilot Information

Certificate:	Private	**Age:**	64,Male
Airplane Rating(s):	Single-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 3 With waivers/limitations	**Last FAA Medical Exam:**	February 2, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1410 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N6878V
Model/Series:	M20F	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-1271
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	2740 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360
Registered Owner:	Kerrville Co Inc	**Rated Power:**	200 Horsepower
Operator:	John B Welch	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	PSF,1194 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	19:54 Local	**Direction from Accident Site:**	30°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.2 inches Hg	**Temperature/Dew Point:**	1°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Elyria, OH (LPR)	**Type of Flight Plan Filed:**	IFR
Destination:	Great Barringto, MA (BGR)	**Type of Clearance:**	IFR
Departure Time:	15:50 Local	**Type of Airspace:**	

Airport Information

Airport:	Walter J Koladza GBR	**Runway Surface Type:**	
Airport Elevation:	739 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	42.160556,-73.482223

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Denis Hamel; FAA/FSDO; Albany, NY
Original Publish Date:	July 21, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=77789

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